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*** It is now 11/6/2008 1:12:34 PM ***

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- Ei EnCompassPat (File 353)
- European Patents Fulltext (File 348)
- French Patents (File 371)
- German Patents Fulltext (File 324)
- IMS Patent Focus (File 447, 947)
- INPADOC/Family and Legal Status (File 345)
- JAPIO - Patent Abstracts of Japan (File 347)
- LitAlert (File 670)
- U.S. Patents Fulltext (1971-1975) (File 652)

- U.S. Patents Fulltext (1976-present) (File 654)
- WIPO/PCT Patents Fulltext (File 349)
- TRADEMARKSCAN - U.S. Federal (File 226)

DialogLink 5 Release Notes

New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports
- New settings allow users to be prompted to save Dialog search sessions in the format of their choice (Microsoft Word, RTF, PDF, HTML, or TEXT)
- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database
- Support for connections to STN Germany and STN Japan services

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? Help Log On Msg

*** ANNOUNCEMENTS ***

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NEW FILE

***File 651, TRADEMARKSCAN(R) - China. See HELP NEWS 651 for details.

RESUMED UPDATING

***File 523, D&B European Financial Records

RELOADS COMPLETED

***File 227, TRADEMARKSCAN(R) - Community Trademarks

FILES RENAMED

***File 321, PLASPEC now known as Plastic Properties Database

FILES REMOVED

***File 601,Early Edition Canada

>>>For the latest news about Dialog products, services, content<<<
>>>and events, please visit What's New from Dialog at <<<
>>><http://www.dialog.com/whatsnew/>. You can find news about <<<
>>>a specific database by entering HELP NEWS <file number>. <<<

? Help Off Line

* * *

Connecting to Scott Jarrett - Dialog - 276702

Connected to Dialog via SMS002103066

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>>>E:Object error, please notify DialogCustomer@Thomson.com, your session is ready to continue

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>>>E: Please log on

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- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database
- Support for connections to STN Germany and STN Japan services

Show Preferences for details

? Help Off Line

* * *

Connecting to Scott Jarrett - Dialog - 276702

Connected to Dialog via SMS002023098

? b 411

> Set Files all

> Select iex and (trad?? or swap?? or bid??) (n2) shift? not py>2002

Processing

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4 databases have items, of 516 searched.

Hits	File	Name
1	15	<u>ABI/Inform(R) 1971-2008/Nov 03</u>
1	16	<u>Gale Group PROMT(R) 1990-2008/Oct 29</u>
1	349	<u>PCT FULLTEXT 1979-2008/UB=20081030UT=20081023</u>
1	996	<u>NewsRoom 2000-2003</u>

Estimated Cost Summary

Project		Client		Charge Code		Searcher		Job		Service Code	User Number
						Scott Jarrett				51	276702
Date		Time		SessionID		Subsession		Subaccount			
11/06/2008		14:21:36		147		3					
Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total	
411	49.4110	145.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145.27	
Sub Totals	49.4110	\$145.27	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$145.27	
Session Totals	49.7680	\$145.29		Telecom	\$4.19					\$149.48	

Begin 15,16,349,996

[File 15] ABI/Inform(R) 1971-2008/Nov 03

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[File 16] Gale Group PROMT(R) 1990-2008/Oct 29

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*File 16: Because of updating irregularities, the banner and the update (UD=) may vary.

[File 349] PCT FULLTEXT 1979-2008/UB=20081030UT=20081023

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[File 996] NewsRoom 2000-2003
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SELECT iex and (trad?? or swap?? or bid??) (n2) shift? not py>2002
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Processing

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3782 IEX

6358938 TRAD??

287579 SWAP??

2576296 BID??

1744756 SHIFT?

4689 ((TRAD?? OR SWAP??) OR BID??) (2N)SHIFT?

25162172 PY>2002

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S1 4 SELECT IEX AND (TRAD?? OR SWAP?? OR BID??) (N2) SHIFT? NOT PY>2002
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? rd

>>>W: Duplicate detection is not supported for File 349.

Records from unsupported files will be retained in the RD set.

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S2 4 RD (UNIQUE ITEMS)
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? t s2/ti/all

2/TI/1 (Item 1 from file: 15)

ABI/Inform(R)

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The time machine

2/TI/2 (Item 1 from file: 16)

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Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. (Contact Center).(Brief Article)

2/106/3 (Item 1 from file: 349)

PCT FULLTEXT

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Country	Number	Kind	Date
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2/TI/4 (Item 1 from file: 996)

NewsRoom 2000-2003

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Workforce management

? t s3/3,k/all

>>>E: Set 3 does not exist

? t s2/3,k/all

2/3,K/1 (Item 1 from file: 15)

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02338921 112932801

The time machine

Fleischer, Joe

Call Center Magazine v15n4 pp: 38-50

Apr 2002

ISSN: 1064-5543 Journal Code: CCMA

Word Count: 3798

Text:

...We see one scheduler to every 100 agents," says Brian Spraetz, director of marketing for IEX (Richardson, TX), referring to clients who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to...the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with...

...a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls...

...forecasting and scheduling tools that are in place at large centers - Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow agents to view schedules within Web browsers. Most of these products...

...few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify...Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call...

...to introduce modules to track agents' attendance and performance, plus their work off the phone.

IEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this...

...summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with...greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time. With vacation time, agents have the choice of joining a waiting...

...presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e...

...225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if your center has...

2/3,K/2 (Item 1 from file: 16)

Gale Group PROMT(R)

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10061815 Supplier Number: 83483434 (USE FORMAT 7 FOR FULLTEXT)

Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. (Contact Center).(Brief Article)

Green, Andy

Communications Convergence , v 9 , n 12 , p 42(6)

Dec , 2001

Language: English Record Type: Fulltext

Article Type: Brief Article

Document Type: Magazine/Journal ; Trade

Word Count: 2740

-

...re-run until an optimal solution emerges. Simulation-based products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating...

...making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes ...for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let employees swap shift time, online. The systems make changes to their databases automatically, while providing appropriate security constraints...

...come closer to matching centers' micro-trends. And its web-based e-SchedulerR lets employees swap shift time without requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC...

...hosted version of the same software and is available on a fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX -- 800-433-7692, www.iex.com) TotalView 2's embedded simulator integrates with IEX's multi-skill scheduler to create schedules that will meet service level goals. More than...

2/3K/3 (Item 1 from file: 349)

Fulltext available through: [Order File History](#)

PCT FULLTEXT

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00359548

VACATION AND HOLIDAY SCHEDULING SYSTEM

SYSTEME DE PROGRAMMATION DE CONGES ET DE VACANCES

Patent Applicant/Patent Assignee:

- IEX CORPORATION

- IEX CORPORATION...

Inventor(s):

- GREEN Edwin Elliot

	Country	Number	Kind	Date
Patent	WO	9642062	A1	19961227
Application	WO	96US10088		19960610
Priorities	US	95484207		19950608

Designated States: (Protection type is "Patent" unless otherwise stated - for applications prior to 2004)

AU, CA, AT, BE, CH, DE, DK, ES, FI, FR,

GB, GR, IE, IT, LU, MC, NL, PT, SE

Publication Language: English

Filing Language:

Fulltext word count: 3572

Detailed Description:

...agent. The ID summary block 118 provides the name of the agent, vacation year being bid upon, the shift and times worked by the selected agent. The vacation/holiday summary block 120 provides a ...

2/3,K/4 (Item 1 from file: 996)

NewsRoom 2000-2003
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0378031704 15PN0YYR
Workforce management

Green, Andy
Communications Convergence , v 9 , n 12 , p 42
Monday , December 31, 2001
Journal Code: AMFK Language: ENGLISH Record Type: Fulltext
Document Type: Scholarly Journal
Word Count: 2,656

Text:

...is re-run until an optimal solution emerges. Simulationbased products include those from Blue Pumpkin, IEX, and ESI.

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? ts2/9,k/4,2,1

2/9,K/4 (Item 1 from file: 996)

NewsRoom 2000-2003

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0378031704 15PN0YYR

Workforce management

Green, Andy

Communications Convergence, v 9, n 12, p 42

Monday, December 31, 2001

Journal Code: AMFK Language: ENGLISH Record Type: Fulltext

Document Type: Scholarly Journal

Word Count: 2,656

Text:

Managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out.

There are many people who'd like to do away with "workforce management" (WFM). The term itself, we hasten to specify - not the application, which is increasingly critical to cost-effective (and humane) contact center management.

Why is "workforce management" a bad term? For David Koosis, vice president of strategy at ISC, "workforce management" connotes images of workers in lockstep on an assembly line. According to Koosis, the term was first used to describe productivity tools developed to manage operator pools in the old Bell System.

But today's agents, Koosis notes, aren't like Bell's operators of 40 or more years ago. These days, contact center agents serve in diverse industries in a broad range of capacities. They've moved beyond fielding frontline tech support questions to advising shareholders on their mutual funds and handling other professional services. They're managing communications in many media (not just voice), and the center in which they work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. It means being flexible about schedules. It means being able to improvise. It means enfranchising workers in the scheduling process. Not just to "keep them happy," but because it's broadly accepted that an enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call center's operational capabilities. As a consequence, the classic assumptions that

the old models made for optimizing service levels and costs were no longer valid. Today's contact center is more like a virtual office. It's a place where project teams with many skills and skill-levels handle multi-media (phone, email, chat, fax) transactions, sometimes simultaneously. You can't model the behavior of such a system using Erlang tables or a simple equation.

Not that the classic math is wrong. Erlang - like Newtonian physics - is a good tool for modeling the behavior of simple systems, e.g., a single queue delivering calls to a single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first-come-first-serve? "Efficiency factors" (really fudge factors) were brought in to adjust the staffing numbers of the formulas, but they led to non-robust answers that worked only under specific circumstances.

The WFM industry has responded to the new reality of the skills-based contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing - you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its use has been refined. And the classic queuing math has been enhanced by new techniques, and has diverged in two directions.

One school - commonly called "analytic" by its practitioners - holds that contact center performance can be modeled accurately by sets of equations, and that optimal scheduling solutions can be achieved without first testing a schedule's performance. Vendors of analytic products include Pipkins, ISC, RightForce and Telecorp. Analytic techniques can be applied fairly rapidly, but involve some simplification. Most notably, analytic methods calculate averages - such as average queue length and average time-to-answer. So the solutions these techniques generate may be optimal in theory (over the long term), but may not describe the spikes and other departures from the mean that characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based workforce management systems represent the call center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used to refine the schedule under test, and the model is re-run until an optimal solution emerges. Simulationbased products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating an initial solution, and in testing and tweaking a proposed shift until it satisfies desiderata. Some argue, however, that they're

better at cost optimization than at insuring that QoS goals will always be met.

Simulations, meanwhile, take much longer to run - industry experts suggest that nobody runs a simulation during the course of the day. So use of software that's exclusively simulation-based may limit the flexibility of call center response to fast-changing real-world conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem - solutions which are better at meeting planned service levels.

Meanwhile, in practical terms though makers of these products seem eager to take sides in the "math vs. simulation" debate - most products aren't pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene Enterprise, for example, improves its solutions by applying an adaptive learning algorithm that examines actual team performance over time. While over in the simulation camp, ESI's Optiwise employs a hybrid approach: It uses Erlang calculations to supply an initial guess of a staffing solution, then relies on heuristics for all subsequent tweaks as the simulation is rerun.

Simulators may also include an analytic framework for making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends how to meet planned service objectives with specific staffing suggestions, when the current call load levels go beyond forecasted levels.

The real question is: How efficient and accurate is this software at performing the kind of analysis and problem-solving I need done?

In the end, we feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are tactical: great for rendering fast solutions especially if your center is in a fairly steady state. Simulations may be of greater strategic value - helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media - and helping you create policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone products - Rockwell Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center - routing, staffing and

all and subject the simulation to an eventstream. Managers can tweak it until all their 'what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager,

generating schedules that meet service-level parameters.

WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems distinguish themselves from one another in several different ways.

All vendors offer monitoring mechanisms, reports, charts and graphs that let you compare actual performance with projections: forecasted to actual call load, expected service level to what the ACD has calculated, etc. And they let you compare proposed agent schedules to what agents are actually doing (real-time adherence). This data helps managers make intraday staffing decisions that keep the center within its service targets.

Some products offer modules that examine real-world data and troubleshoot schedules when QoS falls below objectives. Blue Pumpkin's Workforce Staffing module, for example, will tell managers that the least expensive way to meet service objectives is to hire two Spanish-speaking agents and one English-only agent, all three of whom are certified to offer tech support on products A, B, and C.

The next great frontier for workforce management is web-based features for letting workers contribute to the scheduling process. The web is a great tool here: Workers can examine their own schedules, and, in some cases, request changes, swap places with other equivalently skilled workers, or otherwise assert a sense of control - all without clogging a supervisor's desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let employees swap shift time, online. The systems make changes to their databases automatically, while providing appropriate security constraints to prevent schedule foul-ups as might happen if two agents with unequal skills were to swap spots without other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive scheduling solutions in humane ways. The Irene Enterprise WFM system, from ISC, lets you include policy constraints, such as limits on agent utilization during a particular timeframe, how breaks must be spaced, etc. This avoids producing schedules that satisfy cost and QoS requirements, but cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.
BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic ones, they have the advantage of producing staffing numbers that reflect the way your call center really operates. Blue Pumpkin's (Sunnyvale, CA - 408-8305400, www.bluepumpkin.com) Director Enterprise simulates agent schedules to find the combination that comes closest to meeting service level objectives. If Director Enterprise tells you that you're not meeting service goals due to agent resource limitations, its Workforce Staffing module suggests who you'll need to hire, with a breakdown by skills, to

make up for the agent shortfall. If you want to see how the call center is performing, use Director Enterprise's Pulse. It displays real-time reports comparing forecasted statistics with the current numbers collected by the ACD.

ESI

ESI's (Herzliya, Israel - 972-9-9702500, www.esi-knowledge.com) OptiWise chooses from over 50 separate analytic forecasting techniques to predict call load. OptiWise finds the best technique for each timeslot, so its forecasts come closer to matching centers' micro-trends. And its web-based eSchedulerR lets employees

swap shift time without requiring
a trip to the supervisor's desk.
ISC

Irene Enterprise, from ISC (New York, NY - 212-477-8800, www.isc.com), lets you force solutions that not only meet service and cost objectives, but protect agents from burn-out. Their "agent optimization" approach reasons that theoretically optimal scheduling solutions may require optimal agent performance at all times an unrealistic goal - and that agents whose performance is characteristically good may be overburdened by a scheduler that views them as a "historically dependable, high-performance asset." The system reviews custom constraints, therefore, to balance workload fairly among skilled and lessskilled personnel.

Irene's staffing module is not simulation based. According to David Koosis, vice president of strategy, its talented group of mathematicians has created an accurate analytic model of a multi-skill call center. Also, it uses an adaptive learning algorithm that takes into account "team performance" to obtain a more accurate staffing estimate over time. Irene On-line is the hosted version of the same software and is available on a fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX - 800-433-7692, www.iex.com) TotalView 2's embedded simulator integrates with IEX's multi-skill scheduler to create schedules that will meet service level goals. More than just a planning tool, TotalView includes an Intraday Management module that can reforecast service levels during the workday and make recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. Louis, MO - 800-4696106, www.pipkins.com) Maxima Advantage includes a caller abandonment percentage parameter, which lets its staffing algorithm, Merlang-M, account for callers' actual behavior. Another lesson

that Pipkins has learned is that forecasting for call levels during special events, like a promotion, means that you should predict call loads based on ACD statistics collected for similar past campaigns. Maxima's "correlated forecasting" lets manager's come up with better staffing level for non-average days. Of course, Maxima includes all the reports and graphs needed to show how the call center's actual performance compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue Pumpkin's Workforce Staffing tells you the skills of the agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation.com) Arena Contact Edition simulator is the ideal what-if tool, if you're considering moving towards skills-based routing, or would like to perform an analysis of a change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to staffing, RightForce (Fort Lauderdale, FL 877-336-7231, www.rightforce.com) uses five different methods to account for both demand-based transactions, like voice and chat, and non-demand email and fax. It also produces two types of schedules. A planning schedule displays the optimal schedule needed to achieve service-level objectives, but in which timeslots are filled in with skill types, not actual agent names, while the operational schedule shows how the schedule can be covered from the center's actual agent pool. This reality-based schedule will appeal to cost-conscious managers since it indicates when the center is overstaffed for the week being planned, say, because of excess fixed-hour workers.

During the working day, when servicelevel goals are not met, real-time

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by Andy Green agreen@cmp.com

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Workforce management: managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. (Contact Center).(Brief Article)

Green, Andy

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There are many people who'd like to do away with "workforce management" (WFM). The term itself, we hasten to specify -- not the application, which is increasingly critical to cost-effective (and humane) contact center management.

Why is "workforce management" a bad term? For David Koosis, vice president of strategy at ISC, "workforce management" connotes images of workers in lockstep on an assembly line. According to Koosis, the term was first used to describe productivity tools developed to manage operator pools in the old Bell System.

But today's agents, Koosis notes, aren't like Bell's operators of 40

or more years ago. These days, contact center agents serve in diverse industries in a broad range of capacities. They've moved beyond fielding frontline tech support questions to advising shareholders on their mutual funds and handling other professional services. They're managing communications in many media (not just voice), and the center in which they work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. It means being flexible about schedules. It means being able to improvise. It means enfranchising workers in the scheduling process. Not just to "keep them happy," but because it's broadly accepted that an enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call center's operational capabilities. As a consequence, the classic assumptions that the old models made for optimizing service levels and costs were no longer valid. Today's contact center is more like a virtual office. It's a place where project teams with many skills and skill-levels handle multi-media (phone, email, chat, fax) transactions, sometimes simultaneously. You can't model the behavior of such a system using Erlang tables or a simple equation.

Not that the classic math is wrong. Erlang -- like Newtonian physics -- is a good tool for modeling the behavior of simple systems, e.g., a single queue delivering calls to a single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first-come-first-serve? "Efficiency factors" (really fudge factors) were brought in to adjust the staffing numbers of the formulas, but they led to non-robust answers that worked only under specific circumstances.

The WFM industry has responded to the new reality of the skills-based contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing -- you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its use has been refined. And the classic queuing math has been enhanced by new techniques, and has diverged in two directions.

One school -- commonly called "analytic" by its practitioners -- holds that contact center performance can be modeled accurately by sets of equations, and that optimal scheduling solutions can be achieved without first testing a schedule's performance. Vendors of analytic products include Pipkins, ISC, RightForce and Telecorp. Analytic techniques can be applied fairly rapidly, but involve some simplification. Most notably, analytic methods calculate averages -- such as average queue length and average time-to-answer. So the solutions these techniques generate may be optimal in theory (over the long term), but may not describe the spikes and other departures from the mean that characterize a call center's short-term behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based workforce management systems represent the call

center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used to refine the schedule under test, and the model is re-run until an optimal solution emerges. Simulation-based products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating an initial solution, and in testing and tweaking a proposed shift until it satisfies desiderata. Some argue, however, that they're better at cost-optimization than at insuring that QoS goals will always be met.

Simulations, meanwhile, take much longer to run -- industry experts suggest that nobody runs a simulation during the course of the day. So use of software that's exclusively simulation-based may limit the flexibility of call center response to fast-changing real-world conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem -- solutions which are better at meeting planned service levels.

Meanwhile, in practical terms -- though makers of these products seem eager to take sides in the "math vs. simulation" debate -- most products aren't pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene Enterprise, for example, improves its solutions by applying an adaptive learning algorithm that examines actual team performance over time. While over in the simulation camp, ESI's Optiwise employs a hybrid approach: It uses Erlang calculations to supply an initial guess of a staffing solution, then relies on heuristics for all subsequent tweaks as the simulation is rerun.

Simulators may also include an analytic framework for making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends how to meet planned service objectives with specific staffing suggestions, when the current call load levels go beyond forecasted levels.

The real question is: How efficient and accurate is this software at performing the kind of analysis and problem-solving I need done?

In the end, we feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are

tactical: great for rendering fast solutions -- especially if your center is in a fairly steady state. Simulations may be of greater strategic value -- helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media -- and helping you create policies to maximize cost effectiveness and QoS over

time.

Indeed, some advanced simulators are stand-alone products -- Rockwell Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center -- routing, staffing and all -- and subject the simulation to an event-stream. Managers can tweak it until all their 'what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager, generating schedules that meet service-level parameters.

WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems distinguish themselves from one another in several different ways.

All vendors offer monitoring mechanisms, reports, charts and graphs that let you compare actual performance with projections: forecasted to actual call load, expected service level to what the ACD has calculated, etc. And they let you compare proposed agent schedules to what agents are

actually doing (real-time adherence). This data helps managers make intraday staffing decisions that keep the center within its service targets.

Some products offer modules that examine real-world data and troubleshoot schedules when QoS falls below objectives. Blue Pumpkin's Workforce Staffing module, for example, will tell managers that the least expensive way to meet service objectives is to hire two Spanish-speaking agents and one English-only agent, all three of whom are certified to offer tech support on products A, B, and C.

The next great frontier for workforce management is web-based features for letting workers contribute to the scheduling process. The web is a great tool here: Workers can examine their own schedules, and, in some cases, request changes, swap places with other equivalently skilled workers, or otherwise assert a sense of control -- all without clogging a supervisor's desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let employees

swap shift time, online. The systems make changes to their databases automatically, while providing appropriate security constraints to prevent schedule foul-ups -- as might happen if two agents with unequal skills were to swap spots without other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive scheduling solutions in humane ways. The Irene Enterprise W-FM system, from ISC, lets you include policy constraints, such as limits on agent utilization during a particular timeframe, how breaks must be spaced, etc. This avoids producing schedules that satisfy cost and QoS requirements, but cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.
BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic ones, they have the advantage of producing staffing numbers that reflect the way your call center really operates. Blue Pumpkin's

(Sunnyvale, CA -- 408-830-5400, www.bluepumpkin.com) Director Enterprise simulates agent schedules to find the combination that comes closest to meeting service level objectives. If Director Enterprise tells you that you're not meeting service goals due to agent resource limitations, its Workforce Staffing module suggests who you'll need to hire, with a breakdown by skills, to make up for the agent shortfall. If you want to see how the call center is performing, use Director Enterprise's Pulse. It displays real-time reports comparing forecasted statistics with the current numbers collected by the ACD.

ESI

ESI's (Herzliya, Israel -- 972-9-970-2500, www.esi-knowledge.com) OptiWise chooses from over 50 separate analytic forecasting techniques to predict call load. OptiWise finds the best technique for each timeslot, so its forecasts come closer to matching centers' micro-trends. And its web-based e-SchedulerR lets employees swap shift time without requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY -- 212-477-8800, www.isc.com), lets you force solutions that not only meet service and cost objectives, but protect agents from burn-out. Their "agent optimization" approach reasons that theoretically optimal scheduling solutions may require optimal agent performance at all times -- an unrealistic goal -- and that agents whose performance is characteristically good may be overburdened by a scheduler that views them as a "historically dependable, high-performance asset." The system reviews custom constraints, therefore, to balance work-load fairly among skilled and less-skilled personnel.

Irene's staffing module is not simulation based. According to David Koosis, vice president of strategy, its talented group of mathematicians has created an accurate analytic model of a multi-skill call center. Also, it uses an adaptive learning algorithm that takes into account "team performance" to obtain a more accurate staffing estimate over time. Irene On-line is the hosted version of the same software and is available on a fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX -- 800-433-7692, www.iex.com) TotalView 2's embedded simulator integrates with IEX's multi-skill scheduler to create schedules that will meet service level goals. More than just a planning tool, TotalView includes an Intraday Management module that can reforecast service levels during the workday and make recommendations to keep your call center within spec.

PIPKINS

Pipkin's (St. Louis, MO -- 800-469-6106, www.pipkins.com) Maxima Advantage includes a caller abandonment percentage parameter, which lets its staffing algorithm, Merlang-M, account for callers' actual behavior. Another lesson that Pipkins has learned is that forecasting for call levels during special events, like a promotion, means that you should predict call loads based on ACD statistics collected for similar past campaigns. Maxima's "correlated forecasting" lets manager's come up with better staffing level for non-average days. Of course, Maxima includes all the reports and graphs needed to show how the call center's actual performance

compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

Rockwell Software's (Sewickley, PA -- 412-741-3727, www.arenasimulation.com) Arena Contact Edition simulator is the ideal what-if tool, if you're considering moving towards skills-based routing, or would like to perform an analysis of a change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.

RIGHTFORCE

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The time machine

Fleischer, Joe

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Abstract:

For a call center, the practice of workforce management means finding time for agents so that they are collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls. Once you establish your practices, you are ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like. But workforce management entails more than plotting out a set of timelines on a computer. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules.

Text:

We describe the latest tools and techniques to enable your center to gain maximum efficiency when scheduling the best times for agents to communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest call centers in the world. And last fall, it became a part of the 69--agent call center for the gas company that serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding time for agents so that they're collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls.

Once you establish your practices, you're ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like.

From a mathematical standpoint, scheduling software strives to give your center the most coverage with the fewest agents. Scheduling tools typically work closely with forecasting software, which gathers statistics about service levels and call volumes from automatic call distributors (ACDs). Forecasts let you look back in time so that you can use past call patterns to predict staffing needs within the next week, month or year.

Most vendors tightly integrate their scheduling tools with forecasting software. Many can import and export schedules to and from spreadsheets. Some complement workforce management with call routing or reporting software. One vendor, Aspect (San Jose, CA), plans to allow agents' schedules to adapt automatically to circumstances like sudden swings in the number of calls or staff.

Call centers of all sizes share the same motivation for using software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of timelines on a computer. Since you're developing schedules for people, factors besides efficiency come into play.

One factor to consider when building schedules, for example, is agents' preferences. That applies during good times, when labor markets are saturated, and during difficult times, when corporate budget cuts restrict the number of agents you can hire. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules. In workforce management, as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations that serve customers must have reliable methods of estimating how many employees they need and when they need them.

The Salt Lake Organizing Committee, which oversaw the 2002 Winter Olympics, is no exception. It used software from Global Management Technologies (GMT; Norcross, GA) to schedule shifts for more than 25,000 people, including volunteers who collected tickets from spectators or manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements and figure out the most feasible times for certain agents to answer certain types of calls. In centers with hundreds of seats, forecasting and scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz, director of marketing for IEX (Richardson, TX), referring to clients who use

IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to establish a group of schedulers for the company at one location who collaborate with supervisors at each site. This arrangement is currently in the works at a client of consulting firm Callcenter Performance Management (CPM; Marietta, GA).

Tracy Teamer, CPM's senior vice president of consulting, says that the client, a cable company, has eight sites that formerly operated as separate units. For example, four of the centers created schedules with spreadsheets; the remainder used workforce management software from Aspect. Each site also employed its own scheduler and used different methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer recalls, that they drew up petitions to protest what they thought was unfair scheduling. That was last year. This year, although the sites still have their own schedulers, they report to one person who is responsible for establishing similar scheduling processes among all locations.

"The goal is to have a planning organization," says Teamer.

Tom Aiello, director of marketing for RightForce (Ft. Lauderdale, FL), says that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of performance.

How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way to answer more calls without hiring more agents or cross training those on staff. The software firm's call center, which initially scheduled agents to

spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by \$1.5 million.

Another skill for schedulers: Avoid getting caught up in the details. Art Goes, president of Professional Resource Management (PRM; Palatine, IL), says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out subjectivity and the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with this approach. "Our theory is that ultimately, final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level planning that includes a company's human resources and fiscal departments, not just IT and call center managers. "The budget is not necessarily married to operations," says Pipkins' chief financial officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of call center software you purchase, whether the software is for monitoring agents' calls or enabling them to look up customers' records.

Yet CPM's Teamer finds that call centers tend to treat workforce management software as an expensive employee database. "Most people don't use it as a budgeting tool," she says.

WHY SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of call centers don't necessarily depend on specialized software to schedule agents. One reason is that the software, if it starts at tens of thousands

of dollars, is prohibitively expensive for single-site call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is a viable option for the short term, although it's not widely available. Several vendors offer hosted workforce management tools, as we describe in our product updates below.

Even with the presence of less expensive software, it's hard to shake a

general perception that workforce management is only for centers with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff to administer schedules, let alone plan for how much staff they need for the next year. Supervisors in these centers are often the people who, on top of other responsibilities, devote the equivalent of a full-time job to assigning agents to shifts. Unless it's budget season, forecasting is not the top priority, nor is studying the effects of various hypothetical schedules.

Lack of planning plagues large and small centers alike. "If they're not doing a good job of forecasting, they're constantly going to be reacting to changes," says

IEX's Spraezt.

Compared to schedules for agents who answer calls, schedules that involve outbound calls are less subject to chance. "It's a little more predictable because you're controlling the patterns," says David Marcus, senior vice president of special projects with GMT.

Scheduling tools mainly address the unpredictability of incoming operations, but the tools are used at a small number of centers that handle both inbound and outbound calls. For example, Nielsen Media Research, the source of TV's Nielsen ratings, uses GMT's software to schedule outbound calls at its 2,000-seat center. (CenterForce Technologies, a Bethesda, MD-based developer of ACD reporting tools, also offers software for scheduling outbound calls.)

Beyond forecasts and schedules, workforce management software addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can share information with payroll systems. Hansen's (Dallas, TX) ResourcePro software, for instance, automatically updates agents' schedules and applies the changes to payroll records if agents agree to work overtime.

To ensure that companies develop the discipline of forecasting and scheduling before they implement software, a number of vendors offer training and other professional services through partnerships with The WorkForce Management Group, a consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we should point out that most workforce management tools share certain features in common, depending on the size of the centers that use them.

Developers of forecasting and scheduling tools that are in place at large

centers - Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow agents to view schedules within Web browsers. Most of these products let agents outline the schedules they prefer. In the past few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify that agents are following their schedules.

One feature that's widely available with many products is the ability to schedule on-line communication and calls. But this feature is not catching on because the concept of a universal queue for calls and on-line communication remains an idea, not a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients' call centers block out time for agents to answer e-mail the same way they block out time for training or breaks. That is, these centers designate certain agents to answer e-mail separately from calls, rather than creating schedules where agents respond to e-mail and calls together.

Nearly all vendors we interviewed, large or small, incorporate agents' preferences within schedules, given increasing demand for this capability.

That's among the new features of version 6 of Aspect's eWorkforce Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all agents, the current version of eWFM permits agents to state individual preferences. The one potential drawback, says Larry Skowronek, a senior product manager with Aspect, is that you have to rule out the schedules or shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from Aspect, agents can use the system to adjust their schedules.

The process, which is possible through an optional module called eSchedule Planner IVR (eSP IVR), is similar to what occurs when agents attempt to change their schedules on-line. Agents call the IVR system and key in IDs and passwords to hear their schedules. They can indicate timeframes for which they want to adjust their schedules. And they hear lists of exception codes (like time off, sick leave or jury duty) that they can apply to these changes.

After agents match up timeframes with exception codes, the agents and their supervisors automatically receive notification as soon as the system determines if the changes can go through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to check back about their schedules. Aspect has introduced a notification server that, by default, uses e-mail to inform agents, supervisors, plus anyone else who needs to know, about adjustments to schedules. The company was integrating eSP IVR with the notification server at press time. Other applications of notification, says Aspect's Showronek, are e-mail alerts

when agents' adherence or service levels drop below a certain percentage. Aspect's goal, adds Showronek, is to tie eWFM with eFlow, the company's workflow engine, and Aspect's ACD. In theory, this would enable schedules and routing rules to automatically adapt to sudden peaks and valleys with staffing levels or call volumes. In most centers, though, supervisors and agents prefer to commit to schedules they've set up, and agents have agreed to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call in to an IVR system.

Planner is Blue Pumpkin's latest tool to help you budget for staff before you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The software now lets them apply the same changes to multiple schedules simultaneously rather than having to update each schedule separately.

Keep in mind that by referring to new features, we mean those that are new to specific products. For example, some, but not all, workforce management software vendors include budgeting tools. Creating budgets, forecasts and schedules is complex, but it's more difficult once you start working with outsourcers. That's because you have to determine the most cost-effective distribution of calls to agents at your company and to the agents the outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with workforce management. Its standalone software, Blue Pumpkin Planner, helps you consider scenarios for budgeting staff, including the effect of outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to introduce modules to track agents' attendance and performance, plus their work off the phone.

IEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this option. Also new with TotalView: You can generate adherence reports from the previous day. To ensure you know if agents are up-to-date about when they're working, the software now sends supervisors an immediate notification when agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools is the delivery of on-line courses to agents' PCs when agents have specific times blocked out for training, or when intraday reports indicate a lull in calls. In working with Knowagent's KnowDev Manager, which sends courses to agents, TotalView factors in scheduled training time when calculating adherence. (See last month's issue for further background on training software.)

OdySoft offers workforce management software from its headquarters in Canada, and resells the software in the US through Telecorp Products under the name CentrEE Calbrio. If you buy the software directly from OdySoft,

it's called Calabrio.

The current version of the software enables agents to cite their preferences for shifts. This month, the software will let agents view, trade or bid for schedules on-line. By this summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with schedules, your rules can reflect criteria like agents' seniority, and agents can select where they prefer to sit. Also new is the latest version of a separate vacation module, which allows agents to put in for floating holidays and comp time as well as vacation days.

Vantage Point, the name of the latest version of Pipkins' Maxima Advantage, now enables schedulers to record macros containing their most common sequences of keystrokes and mouse clicks so they don't have to repeat these actions each time they launch the software. The first time they use Vantage Point, schedulers create profiles of themselves, which they can subsequently update; these profiles include their macros.

Like the vendors that specialize in serving large centers, vendors that gear their scheduling software toward small and mid-size centers - GMT, ISC, PRM, Portage and RightForce - give you plenty of flexibility in how you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which individual agents or what percentage of agents should receive their first preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which agents or percentage of agents should receive their top choices of shifts, based on seniority or other factors.

Besides preferences, scheduling tools for small centers also let you factor in agents' proficiency to handle certain types of calls. A new feature of RightForce's software is that it lets you indicate a starting proficiency level for new hires and allows you to set a timeframe for how long it usually takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time. With vacation time, agents have the choice of joining a waiting list if the dates they asked for are not available.

You install most workforce management software at your center. ISC is unusual in that half of its customers prefer the company to host its software. Bob Junk, vice president of global sales and marketing for ISC (New York, NY), says that the company's clients sometimes opt for hosting for as long as three or four months before they decide if they want to bring the software in-house. RightForce also hosts its software for its

clients.

Some vendors, like Aspect and Genesys, offer call routing software that meshes with their forecasting and scheduling tools. Other vendors complement their workforce management products with call reporting software.

With the help of Mission Control, an optional module, version 8 of GMT's scheduling software lets you view forecasts in comparison to historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists of shifts that are available to them. Agents can request to

trade shifts or put in for time off. This module automatically sends agents and their supervisors e-mail messages to let them know if it's possible to fulfill the requests, subject to your center's rules. If a request is not feasible, the module presents agents with alternate schedules.

Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce management tool, incorporates a repository of ACD statistics, plus two other products from Symon: Symon 2000, which provides real-time ACD reports, and Historian, which lets you consolidate data from various sources, including phone switches from different manufacturers.

Symon, along with Eqtima (Battle Creek, MI) and Hansen, is among the new developers of forecasting and scheduling tools. We'll keep you posted on the evolution of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to share this information by press time.

Aspect

Aspect's software begins at \$20,000 per server and \$300 per supervisor. The starting cost for each agent is \$100 if you use the software to do forecasts, build schedules and compare data like the number of calls you expected to receive, and for which you planned in your schedules, against actual call volumes.

Blue Pumpkin

For a 500-seat center, PrimeTime Director and PrimeTime Planner together start at about \$225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if your center has one site and \$1,475 per seat if you have multiple sites. Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at \$20 per month for each agent you schedule, plus an initial set-up fee of \$5,000. ISC declined to cite pricing for on-site software licenses, which the company was determining at press time.

OdySoft

Pricing for Calabrio, if you purchase it directly from OdySoft, ranges from \$40,000 for a 100-seat center to \$51,750 for a 250-seat center. Each of these costs includes \$6,000 to measure real-time adherence, \$4,500 to capture data from one ACD, and \$4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and costs \$1,000 per day. Annual maintenance is between 15% and 18% of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs \$15,000, plus travel expenses for on-site installation. For intraday reports, the software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at \$4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention, AgentTime does not directly import statistics from ACDs.

Symon

Pricing for Contact Center Community, including the Symon 2000 and Historian reporting modules, starts at \$59,000 for a 100-seat center, plus annual maintenance that begins at 15%.

To sum up, the more features, the higher the price. This rule applies to

most products, especially workforce management software. That's why your best bet is to buy only what you need, especially if a product's basic forecasting and scheduling features are enough for your center.

You can potentially reduce certain costs, like those related to integration, if you already have routing software or other complementary products from the same company that provides your workforce management tools.

THIS IS THE FULL-TEXT.

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Geographic Names: United States; US

Descriptors: Call centers; Workforce planning; Software; Scheduling

Classification Codes: 6100 (CN=Human resource planning); 5240 (CN=Software & systems); 9190 (CN=United States)

Print Media ID: 42689

Text:

...We see one scheduler to every 100 agents," says Brian Spraetz, director of marketing for IEX (Richardson, TX), referring to clients who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to...the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with...

...a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraetz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls...

...forecasting and scheduling tools that are in place at large centers - Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow agents to view schedules within Web browsers. Most of these products...

...few years, more products have added the ability to respond automatically

to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify...Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call...

...to introduce modules to track agents' attendance and performance, plus their work off the phone.

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...225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if your center has...

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Estimated Cost Summary

Project		Client		Charge Code		Searcher		Job		Service Code	User Number
						Scott Jarrett				51	276702
Date		Time		SessionID		Subsession		Subaccount			
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Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total	
15	0.1670	0.93	0.00	5.56	0.00	0.00	0.00	0.00	0.00	6.49	
16	0.4210	2.35	0.00	5.45	0.00	0.00	0.00	0.00	0.00	7.80	
349	0.2330	1.14	0.00	1.97	0.00	0.00	0.00	0.00	0.00	3.11	

996	4.4510	19.59	0.00	5.07	0.00	0.00	0.00	0.00	0.00	24.66
Sub Totals	5.2720	\$24.01	\$0.00	\$18.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.06
Session Totals	55.3860	\$173.82		Telecom	\$0.93					\$192.80

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1	73	<u>EMBASE 1974-2008/Nov 05</u>
26	75	<u>TGG Management Contents(R) 86-2008/Oct W2</u>
6	80	<u>TGG Aerospace/Def.Mkts(R) 1982-2008/Oct 28</u>
126	88	<u>Gale Group Business A.R.T.S. 1976-2008/Nov 06</u>
2	95	<u>TEME-Technology & Management 1989-2008/Oct W3</u>
3	112	<u>UBM Industry News 1998-2004/Jan 27</u>
8	122	<u>Harvard Business Review 1971-2007/Sep</u>
1	139	<u>EconLit 1969-2008/Sep</u>
1	144	<u>Pascal 1973-2008/Nov W1</u>
264	148	<u>Gale Group Trade & Industry DB 1976-2008/Nov 04</u>
6	149	<u>TGG Health&Wellness DB(SM) 1976-2008/Oct W1</u>
59	180	<u>Federal Register 19852008/Nov 06</u>
1	212	<u>ONTAP(R) PsycINFO(R)</u>
3	215	<u>ONTAP(R) ABI/INFORM(R)</u>
3	247	<u>ONTAP(R) Gale Group Magazine Index(TM)</u>
1	249	<u>Mgt. & Mktg. Abs. 1976-2007Apr W5</u>
8	258	<u>AP News Jul 2000-2008/Nov 06</u>
3	261	<u>UPI News 1999-2005/Nov 17</u>
21	262	<u>CBCA Fulltext 1982-2008/Nov W1</u>
1	266	<u>FEDRIP 2008/Aug</u>
5	267	<u>Finance & Banking Newsletters 2008/Sep 29</u>
15	268	<u>Banking Info Source 1981-2008/Oct W3</u>
18	275	<u>Gale Group Computer DB(TM) 1983-2008/Oct 27</u>
1	324	<u>GERMAN PATENTS FULLTEXT 1967-200844</u>
1	348	<u>EUROPEAN PATENTS 1978-200844</u>
17	349	<u>PCT FULLTEXT 1979-2008/UB=20081030/UT=20081023</u>
1	387	<u>The Denver Post 1994-2008/Nov 04</u>
3	388	<u>PEDS</u>
2	392	<u>Boston Herald 1995-2006/Jun 14</u>
4	397	<u>Las Vegas Review-Journal 1997-2005/Sep 28</u>
2	427	<u>Fort Worth Star-Telegram 1993-2004/Feb 25</u>
2	432	<u>Tampa Tribune 1998-2008/Nov 03</u>
4	433	<u>Charleston Newspapers 1997-2008/Nov 05</u>
2	440	<u>Current Contents Search(R) 1990-2008/Nov 06</u>
39	471	<u>New York Times Fulltext 1980-2008/Nov 05</u>
1	477	<u>Irish Times 1999-2008/Nov 06</u>
1	483	<u>Newspaper Abs Daily 1986-2008/Nov 05</u>
118	484	<u>Periodical Abs Plustext 1986-2008/Sep W4</u>
22	485	<u>Accounting & Tax DB 1971-2008/Oct W4</u>
1	486	<u>Press-Telegram 1992- 2008/Nov 05</u>
1	487	<u>Columbus Ledger-Enquirer 1994-2008/Oct 25</u>
1	489	<u>The News-Sentinel 1991-2008/Nov 04</u>
9	492	<u>Arizona Repub/Phoenix Gaz 19862002/Jan 06</u>
8	494	<u>St.LouisPost-Dispatch 1988-2008/Nov 05</u>
1	542	<u>SEC Onliner(TM) 10-K Reports 1997/Sep W3</u>
2	543	<u>SEC Onliner(TM) 10-Q Reports 1997/Sep W3</u>

1 553 Wilson Bus. Abs. 1982-2008/Sep
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 1 563 Key Note Market Res. 1986-2001/Aug 03
 3 564 ICC Brit.Co.Ann.Rpts 1984-2004/Jun 22
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 4 606 Africa News 1999-2008/Nov 06
 39 608 MCT Information Svc. 1992-2008/Nov 06
 90 609 Bridge World Markets 2000-2001/Oct 01
 10 610 Business Wire 1999-2008/Nov 06
 5 612 Japan Economic Newswire(TM) 1984-2008/Nov 06
 5 613 PR Newswire 1999-2008/Nov 06
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 90 619 Asia Intelligence Wire 1995-2008/Nov 05
 9 620 EIU
 12 621 Gale Group New Prod.Annou.(R) 1985-2008/Oct 14
 15 623 Business Week 1985-2008/Nov 05
 27 624 McGraw-Hill Publications 1985-2008/Nov 06
 5 625 American Banker Publications 1981-2008/Jun 26
 3 626 Bond Buyer Full Text 1981-2008/Jul 07
 8 627 EIU
 6 628 Ctry Risk & Forecasts 2008/Nov 04
 9 629 EIU
 11 631 Boston Globe 1980-2008/Nov 06
 8 633 Phil.Inquirer 1983-2008/Nov 06
 9 634 San Jose Mercury Jun 1985-2008/Nov 04
 48 635 Business Dateline(R) 1985-2008/Nov 01
 27 636 Gale Group Newsletter DB(TM) 1987-2008/Oct 29
 41 637 Journal of Commerce 1986-2008/Nov 11
 8 638 Newsday/New York Newsday 1987-2008/Nov 05
 6 640 San Francisco Chronicle 1988-2008/Nov 06
 3 641 Rocky Mountain News Jun 1989-2008/Nov 06
 3 642 The Charlotte Observer 1988-2008/Nov 02
 2 643 Grand Forks Herald 1995-2008/Nov 06
 1 644 (Boulder) Daily Camera 1995- 2008/Nov 07
 1 645 Contra Costa Papers 1995- 2008/Apr 27
 1 646 Consumer Reports 1982-2008/Oct
 9 647 UBM Computer Fulltext 1988-2008/Oct W3
 8 648 TV and Radio Transcripts 1997-2008/Nov W1
 17 649 Gale Group Newswire ASAP(TM) 2008/Oct 16

 45 654 US PAT.FULL. 1976-2008/OCT 30
 34 660 Federal News Service 1991-2002/Jul 02
 2 684 Bradenton Herald 1992-2008/Oct 13
 5 701 St Paul Pioneer Pr Apr 1988-2008/Nov 02
 6 702 Miami Herald 1983-2008/Nov 06
 1 703 USA Today 1989-2008/Nov 04
 8 704 (Portland)The Oregonian 1989-2008/Nov 04
 7 706 (New Orleans)Times Picayune 1989-2008/Nov 06

8 707 The Seattle Times 1989-2008/Nov 04
 2 708 Akron Beacon Journal 1989-2008/Nov 03
 3 709 Richmond Times-Disp. 1989-2008/Nov 02
 6 710 Times/Sun.Times(London) Jun 1988-2008/Nov 05
 1 711 Independent(London) Sep 1988-2006/Dec 12
 3 712 Palm Beach Post 1989-2008/Sep 28
 3 713 Atlanta J/Const. 1989-2008/Nov 05
 6 714 (Baltimore) The Sun 1990-2008/Nov 05
 6 715 Christian Sci.Mon. 1989-2008/Nov 06
 3 716 Daily News Of L.A. 1989-2008/Oct 24
 1 717 The Washington Times Jun 1989-2008/Nov 05
 5 718 Pittsburgh Post-Gazette Jun 1990-2008/Nov 05
 4 719 (Albany) The Times Union Mar 1986-2008/Nov 05
 2 720 (Columbia) The State Dec 1987-2008/Nov 06
 2 723 The Wichita Eagle 1990-2008/Nov 05
 4 724 (Minneapolis)Star Tribune 1989-1996/Feb 04
 6 726 S.China Morn.Post 1992--2008/Nov 05
 27 727 Canadian Newspapers 1990-2008/Nov 06
 16 728 Asia/Pac News 1994-2005/Dec W2
 4 731 Philad.Dly.News 1983- 2008/Nov 06
 2 732 San Francisco Exam. 1990- 2000/Nov 21
 4 733 The Buffalo News 1990- 2008/Nov 04
 2 734 Dayton Daily News Oct 1990- 2008/Nov 02
 3 735 St. Petersburg Times 1989- 2008/Nov 05
 6 736 Seattle Post-Int. 1990-2008/Oct 24
 1 738 (Allentown) The Morning Call 1990-2008/Nov 03
 2 739 The Frcsno Bcc 1990-2008/Nov 05
 1 741 (Norfolk)Led./Pil. 1990-2008/Nov 04
 3 742 (Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04
 3 743 (New Jersey)The Record 1989-2008/Nov 03
 1 744 (Biloxi) Sun Herald 1995-2008/Oct 24
 2 748 Asia/Pac Bus. Jrnls 1994-2005/Dec 13
 1 750 Emerging Mkts & Middle East News 1995-2005/Dec 13
 4 755 New Zealand Newspapers 1995-2008/Nov 06
 1 756 Daily/Sunday Telegraph 2000-2008/Nov 05
 4 757 Mirror Publications/Independent
 2 767 Frost & Sullivan Market Eng 2008/Nov 06

6 774 EdgarPlus(TM)-Prospectuses 2006/Oct 03
 4 775 EdgarPlus(TM)-Reg. Statcmnts 2006/Oct 03
 38 781 ProQuest Newsstand 1998-2008/Nov 06
 3 810 Business Wire 1986-1999/Feb 28
 3 813 PR Newswire 1987-1999/Apr 30
 3 929 Albuquerque Newspapers 1995-2005/Jul 31
 3 979 Milwaukee Jnl Sentinel Apr 1998-2008/Nov 05
 25 985 World News Connection(R) 1995-2008/Nov 06
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- Derwent World Patents Index First View (File 331)
- Derwent World Patents Index (File 351)
- Derwent World Patents Index (File 350)
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- French Patents (File 371)
- German Patents Fulltext (File 324)
- IMS Patent Focus (File 447, 947)

- INPADOC/Family and Legal Status (File 345)
- JAPIO - Patent Abstracts of Japan (File 347)
- LitAlert (File 670)
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- U.S. Patents Fulltext (1976-present) (File 654)
- WIPO/PCT Patents Fulltext (File 349)
- TRADEMARKSCAN - U.S. Federal (File 226)

DialogLink 5 Release Notes

New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports
- New settings allow users to be prompted to save Dialog search sessions in the format of their choice (Microsoft Word, RTF, PDF, HTML, or TEXT)
- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database
- Support for connections to STN Germany and STN Japan services

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 264 148 [Gale Group Trade & Industry DB 1976-2008/Nov 04](#)
 6 149 [TGG Health&Wellness DB\(SM\) 1976-2008/Oct W1](#)
 59 180 [Federal Register 19852008/Nov 06](#)
 1 212 [ONTAP\(R\) PsycINFO\(R\)](#)
 3 215 [ONTAP\(R\) ABI/INFORM\(R\)](#)
 3 247 [ONTAP\(R\) Gale Group Magazine Index\(TM\)](#)
 1 249 [Mgt. & Mktg. Abs. 1976-2007/Apr W5](#)
 8 258 [AP News Jul 2000-2008/Nov 06](#)
 3 261 [UPI News 1999-2005/Nov 17](#)
 21 262 [CBCA Fulltext 1982-2008/Nov W1](#)
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 4 433 [Charleston Newspapers 1997-2008/Nov 05](#)
 2 440 [Current Contents Search\(R\) 1990-2008/Nov 06](#)
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 1 487 [Columbus Ledger-Enquirer 1994-2008/Oct 25](#)
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 8 638 Newsday/New York Newsday 1987-2008/Nov 05
 6 640 San Francisco Chronicle 1988-2008/Nov 06
 3 641 Rocky Mountain News Jun 1989-2008/Nov 06
 3 642 The Charlotte Observer 1988-2008/Nov 02

2 643 Grand Forks Herald 1995-2008/Nov 06
 1 644 (Boulder) Daily Camera 1995- 2008/Nov 07
 1 645 Contra Costa Papers 1995- 2008/Apr 27
 1 646 Consumer Reports 1982-2008/Oct
 9 647 UBM Computer Fulltext 1988-2008/Oct W3
 8 648 TV and Radio Transcripts 1997-2008/Nov W1
 17 649 Gale Group Newswire ASAP(TM) 2008/Oct 16
 45 654 US PAT.FULL. 1976-2008/OCT 30
 34 660 Federal News Service 1991-2002/Jul 02
 2 684 Bradenton Herald 1992-2008/Oct 13
 5 701 St Paul Pioneer Pr Apr 1988-2008/Nov 02
 6 702 Miami Herald 1983-2008/Nov 06
 1 703 USA Today 1989-2008/Nov 04
 8 704 (Portland)The Oregonian 1989-2008/Nov 04
 7 706 (New Orleans)Times Picayune 1989-2008/Nov 06
 8 707 The Seattle Times 1989-2008/Nov 04
 2 708 Akron Beacon Journal 1989-2008/Nov 03
 3 709 Richmond Times-Disp. 1989-2008/Nov 02
 6 710 Times/Sun.Times(London) Jun 1988-2008/Nov 05
 1 711 Independent(London) Sep 1988-2006/Dec 12
 3 712 Palm Beach Post 1989-2008/Sep 28

3	713	<u>Atlanta J/Const. 1989-2008/Nov 05</u>
6	714	<u>(Baltimore) The Sun 1990-2008/Nov 05</u>
6	715	<u>Christian Sci.Mon. 1989-2008/Nov 06</u>
3	716	<u>Daily News Of L.A. 1989-2008/Oct 24</u>
1	717	<u>The Washington Times Jun 1989-2008/Nov 06</u>
5	718	<u>Pittsburgh Post-Gazette Jun 1990-2008/Nov 05</u>
4	719	<u>(Albany) The Times Union Mar 1986-2008/Nov 05</u>
2	720	<u>(Columbia) The State Dec 1987-2008/Nov 06</u>
2	723	<u>The Wichita Eagle 1990-2008/Nov 05</u>
4	724	<u>(Minneapolis)Star Tribune 1989-1996/Feb 04</u>
6	726	<u>S.China Morn.Post 1992-2008/Nov 05</u>
27	727	<u>Canadian Newspapers 1990-2008/Nov 06</u>
16	728	<u>Asia/Pac News 1994-2005/Dec W2</u>
4	731	<u>Philad.Dly.News 1983- 2008/Nov 06</u>
2	732	<u>San Francisco Exam. 1990- 2000/Nov 21</u>
4	733	<u>The Buffalo News 1990- 2008/Nov 04</u>
2	734	<u>Dayton Daily News Oct 1990- 2008/Nov 02</u>
3	735	<u>St. Petersburg Times 1989- 2008/Nov 05</u>
6	736	<u>Seattle Post-Int. 1990-2008/Oct 24</u>
1	738	<u>(Allentown) The Morning Call 1990-2008/Nov 03</u>
2	739	<u>The Fresno Bee 1990-2008/Nov 05</u>
1	741	<u>(Norfolk)Led./Pil. 1990-2008/Nov 04</u>
3	742	<u>(Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04</u>
3	743	<u>(New Jersey)The Record 1989-2008/Nov 03</u>
1	744	<u>(Biloxi) Sun Herald 1995-2008/Oct 24</u>
2	748	<u>Asia/Pac Bus. Jrnl 1994-2005/Dec 13</u>
1	750	<u>Emerging Mkts & Middle East News 1995-2005/Dec 13</u>
4	755	<u>New Zealand Newspapers 1995-2008/Nov 06</u>
1	756	<u>Daily/Sunday Telegraph 2000-2008/Nov 05</u>
4	757	<u>Mirror Publications/Independent</u>
2	767	<u>Frost & Sullivan Market Eng 2008/Nov 06</u>
6	774	<u>EdgarPlus(TM)-Prospectuses 2006/Oct 03</u>
4	775	<u>EdgarPlus(TM)-Reg. Statements 2006/Oct 03</u>
38	781	<u>ProQuest Newsstand 1998-2008/Nov 06</u>
3	810	<u>Business Wire 1986-1999/Feb 28</u>
3	813	<u>PR Newswire 1987-1999/Apr 30</u>
3	929	<u>Albuquerque Newspapers 1995-2005/Jul 31</u>
3	979	<u>Milwaukee Jnl Sentinel Apr 1998-2008/Nov 06</u>
25	985	<u>World News Connection(R) 1995-2008/Nov 06</u>
405	996	<u>NewsRoom 2000-2003</u>

Reordered Hits

Hits File [Name](#)

405	996	<u>NewsRoom 2000-2003</u>
264	148	<u>Gale Group Trade & Industry DB 1976-2008/Nov 04</u>
240	15	<u>ABI/Inform(R) 1971-2008/Nov 03</u>
222	20	<u>Dialog Global Reporter 1997-2008/Nov 05</u>
126	88	<u>Gale Group Business A.R.T.S. 1976-2008/Nov 06</u>
118	484	<u>Periodical Abs Plustext 1986-2008/Sep W4</u>
90	609	<u>Bridge World Markets 2000-2001/Oct 01</u>
90	619	<u>Asia Intelligence Wire 1995-2008/Nov 05</u>
82	16	<u>Gale Group PROMT(R) 1990-2008/Oct 29</u>
66	47	<u>Gale Group Magazine DB(TM) 1959-2008/Oct 21</u>
59	180	<u>Federal Register 19852008/Nov 06</u>
48	635	<u>Business Dateline(R) 1985-2008/Nov 01</u>
45	654	<u>US PAT.FULL. 1976-2008/OCT 30</u>
42	13	<u>BAMP 2008/Nov 04</u>
41	637	<u>Journal of Commerce 1986-2008/Nov 11</u>
39	471	<u>New York Times Fulltext 1980-2008/Nov 05</u>
39	608	<u>MCT Information Svc. 1992-2008/Nov 06</u>
38	781	<u>ProQuest Newsstand 1998-2008/Nov 06</u>
34	660	<u>Federal News Service 1991-2002/Jul 02</u>
27	624	<u>McGraw-Hill Publications 1985-2008/Nov 06</u>
27	636	<u>Gale Group Newsletter DB(TM) 1987-2008/Oct 29</u>
27	727	<u>Canadian Newspapers 1990-2008/Nov 06</u>
26	75	<u>TGG Management Contents(R) 86-2008/Oct W2</u>
25	985	<u>World News Connection(R) 1995-2008/Nov 06</u>
22	9	<u>Business & Industry(R) Jul/1994-2008/Nov 05</u>
22	485	<u>Accounting & Tax DB 1971-2008/Oct W4</u>
21	262	<u>CBCA Fulltext 1982-2008/Nov W1</u>
18	275	<u>Gale Group Computer DB(TM) 1983-2008/Oct 27</u>
17	349	<u>PCT FULLTEXT 1979-2008/UB=20081030UT=20081023</u>
17	649	<u>Gale Group Newswire ASAP(TM) 2008/Oct 16</u>
16	728	<u>Asia/Pac News 1994-2005/Dec W2</u>
15	268	<u>Banking Info Source 1981-2008/Oct W3</u>
15	570	<u>Gale Group MARS(R) 1984-2008/Oct 28</u>
15	623	<u>Business Week 1985-2008/Nov 05</u>
12	621	<u>Gale Group New Prod. Annou.(R) 1985-2008/Oct 14</u>
11	631	<u>Boston Globe 1980-2008/Nov 06</u>
10	610	<u>Business Wire 1999-2008/Nov 06</u>
9	492	<u>Arizona Repub/Phoenix Gaz 19862002/Jan 06</u>
9	620	<u>EIU</u>
9	629	<u>EIU</u>
9	634	<u>San Jose Mercury Jun 1985-2008/Nov 04</u>
9	647	<u>UBM Computer Fulltext 1988-2008/Oct W3</u>
8	122	<u>Harvard Business Review 1971-2007/Sep</u>
8	258	<u>AP News Jul 2000-2008/Nov 06</u>
8	494	<u>St.LouisPost-Dispatch 1988-2008/Nov 05</u>
8	627	<u>EIU</u>
8	633	<u>Phil.Inquirer 1983-2008/Nov 06</u>

8 638 Newsday/New York Newsday 1987-2008/Nov 05
 8 648 TV and Radio Transcripts 1997-2008/Nov W1
 8 704 (Portland)The Oregonian 1989-2008/Nov 04
 8 707 The Seattle Times 1989-2008/Nov 04
 7 706 (New Orleans)Times Picayune 1989-2008/Nov 06
 6 80 TGG Aerospace/Def.Mkts(R) 1982-2008/Oct 28
 6 149 TGG Health&Wellness DB(SM) 1976-2008/Oct W1
 6 628 Ctry Risk & Forecasts 2008/Nov 04
 6 640 San Francisco Chronicle 1988-2008/Nov 06
 6 702 Miami Herald 1983-2008/Nov 06
 6 710 Times/Sun.Times(London) Jun 1988-2008/Nov 05
 6 714 (Baltimore) The Sun 1990-2008/Nov 05
 6 715 Christian Sci.Mon. 1989-2008/Nov 06
 6 726 S.China Morn.Post 1992--2008/Nov 05
 6 736 Seattle Post-Intl. 1990-2008/Oct 24
 6 774 EdgarPlus(TM)-Prospectuses 2006/Oct 03
 5 267 Finance & Banking Newsletters 2008/Sep 29
 5 612 Japan Economic Newswire(TM) 1984-2008/Nov 06
 5 613 PR Newswire 1999-2008/Nov 06
 5 625 American Banker Publications 1981-2008/Jun 26
 5 701 St Paul Pioneer Pr Apr 1988-2008/Nov 02
 5 718 Pittsburgh Post-Gazette Jun 1990-2008/Nov 05
 4 397 Las Vegas Review-Journal 1997-2005/Sep 28
 4 433 Charleston Newspapers 1997-2008/Nov 05
 4 606 Africa News 1999-2008/Nov 06
 4 719 (Albany) The Times Union Mar 1986-2008/Nov 05
 4 724 (Minneapolis)Star Tribune 1989-1996/Feb 04
 4 731 Philad.Dly.News 1983- 2008/Nov 06
 4 733 The Buffalo News 1990- 2008/Nov 04
 4 755 New Zealand Newspapers 1995-2008/Nov 06

 4 757 Mirror Publications/Independent
 4 775 EdgarPlus(TM)-Reg. Statements 2006/Oct 03
 3 112 UBM Industry News 1998-2004/Jan 27
 3 215 ONTAP(R) ABI/INFORM(R)
 3 247 ONTAP(R) Gale Group Magazine Index(TM)
 3 261 UPI News 1999-2005/Nov 17
 3 388 PEDS
 3 564 ICC Brit.Co.Ann.Rpts 1984-2004/Jun 22
 3 626 Bond Buyer Full Text 1981-2008/Jul 07
 3 641 Rocky Mountain News Jun 1989-2008/Nov 06
 3 642 The Charlotte Observer 1988-2008/Nov 02
 3 709 Richmond Times-Disp. 1989-2008/Nov 02
 3 712 Palm Beach Post 1989-2008/Sep 28
 3 713 Atlanta J/Const. 1989-2008/Nov 05
 3 716 Daily News Of L.A. 1989-2008/Oct 24
 3 735 St. Petersburg Times 1989- 2008/Nov 05
 3 742 (Madison)Cap.Tim/Wi.St.J 1990-2008/Nov 04

3 743 [\(New Jersey\)The Record 1989-2008/Nov 03](#)
 3 810 [Business Wire 1986-1999/Feb 28](#)
 3 813 [PR Newswire 1987-1999/Apr 30](#)
 3 929 [Albuquerque Newspapers 1995-2005/Jul 31](#)
 3 979 [Milwaukee Jnl Sentinel Apr 1998-2008/Nov 06](#)
 2 2 [INSPEC 1898-2008/Oct W1](#)
 2 7 [Social SciSearch\(R\) 1972-2008/Nov W2](#)
 2 30 [AsiaPacific 1985-2008/Oct 06](#)
 2 95 [TEME-Technology & Management 1989-2008/Oct W3](#)
 2 392 [Boston Herald 1995-2006/Jun 14](#)
 2 427 [Fort Worth Star-Telegram 1993-2004/Feb 25](#)
 2 432 [Tampa Tribune 1998-2008/Nov 03](#)
 2 440 [Current Contents Search\(R\) 1990-2008/Nov 06](#)
 2 543 [SEC Online\(TM\) 10-Q Reports 1997/Sep W3](#)
 2 614 [AFP English Wire 1999-2008/Nov 06](#)
 2 643 [Grand Forks Herald 1995-2008/Nov 06](#)
 2 684 [Bradenton Herald 1992-2008/Oct 13](#)
 2 708 [Akron Beacon Journal 1989-2008/Nov 03](#)
 2 720 [\(Columbia\) The State Dec 1987-2008/Nov 06](#)
 2 723 [The Wichita Eagle 1990-2008/Nov 05](#)
 2 732 [San Francisco Exam. 1990- 2000/Nov 21](#)
 2 734 [Dayton Daily News Oct 1990- 2008/Nov 02](#)
 2 739 [The Fresno Bee 1990-2008/Nov 05](#)
 2 748 [Asia/Pac Bus. Jrls 1994-2005/Dec 13](#)
 2 767 [Frost & Sullivan Market Eng 2008/Nov 06](#)
 1 8 [Ei Compendex\(R\) 1884-2008/Oct W4](#)
 1 11 [PsycINFO\(R\) 1887-2008/Oct W4](#)
 1 14 [Mechanical and Transport Engineer](#)
 1 34 [SciSearch\(R\) Cited Ref Sci 1990-2008/Nov W2](#)
 1 35 [Dissertation Abs Online 1861-2008/Oct](#)
 1 56 [Computer and Information Systems](#)
 1 57 [Electronics & Communications](#)

 1 61 [Civil Engineering Abstracts. 1966-2008/Oct](#)
 1 72 [EMBASE 1993-2008/Nov 05](#)
 1 73 [EMBASE 1974-2008/Nov 05](#)
 1 139 [EconLit 1969-2008/Sep](#)
 1 144 [Pascal 1973-2008/Nov W1](#)
 1 212 [ONTAP\(R\) PsycINFO\(R\)](#)
 1 249 [Mgt. & Mktg. Abs. 1976-2007/Apr W5](#)
 1 266 [FEDRIIP 2008/Aug](#)
 1 324 [GERMAN PATENTS FULLTEXT 1967-200844](#)
 1 348 [EUROPEAN PATENTS 1978-200844](#)
 1 387 [The Denver Post 1994-2008/Nov 04](#)
 1 477 [Irish Times 1999-2008/Nov 06](#)
 1 483 [Newspaper Abs Daily 1986-2008/Nov 05](#)
 1 486 [Press-Telegram 1992- 2008/Nov 05](#)
 1 487 [Columbus Ledger-Enquirer 1994-2008/Oct 25](#)

1 489 The News-Sentinel 1991-2008/Nov 04
 1 542 SEC Online(TM) 10-K Reports 1997/Sep W3
 1 553 Wilson Bus. Abs. 1982-2008/Sep
 1 560 Spokane Spokesman-Review 1994-2008/Nov 03
 1 563 Key Note Market Res. 1986-2001/Aug 03
 1 644 (Boulder) Daily Camera 1995- 2008/Nov 07
 1 645 Contra Costa Papers 1995- 2008/Apr 27
 1 646 Consumer Reports 1982-2008/Oct
 1 703 USA Today 1989-2008/Nov 04
 1 711 Independent(London) Sep 1988-2006/Dec 12
 1 717 The Washington Times Jun 1989-2008/Nov 06
 1 738 (Allentown) The Morning Call 1990-2008/Nov 03
 1 741 (Norfolk) Led.Pil. 1990-2008/Nov 04
 1 744 (Biloxi) Sun Herald 1995-2008/Oct 24
 1 750 Emerging Mkts & Middle East News 1995-2005/Dec 13
 1 756 Daily/Sunday Telegraph 2000-2008/Nov 05

Estimated Cost Summary

Project		Client		Charge Code		Searcher		Job		Service Code	User Number
						Scott Jarrett				51	276702
Date		Time		SessionID		Subsession		Subaccount			
11/06/2008		15:21:49		148		3					
Data Base	Dial Units	Access Charge	Print Credit	Types	Prints	Report	Rank	Links	CSS	Total	
411	76.9240	226.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	226.16	
Sub Totals	76.9240	\$226.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$226.16	
Session Totals	77.2830	\$226.21		Telecom	\$6.40					\$232.61	

Begin 996, 148, 15, 484, 635, 654, 781, 624, 349, 623, 634

[File 996] NewsRoom 2000-2003

(c) 2008 Dialog. All rights reserved.

[File 148] Gale Group Trade & Industry DB 1976-2008/Nov 04

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**File 148: The CURRENT feature is not working in File 148. See HELP NEWS148.*

[File 15] ABI/Inform(R) 1971-2008/Nov 03

(c) 2008 ProQuest Info&Learning. All rights reserved.

[File 484] Periodical Abs Plustext 1986-2008/Sep W4
(c) 2008 ProQuest. All rights reserved.

[File 635] Business Dateline(R) 1985-2008/Nov 06
(c) 2008 ProQuest Info&Learning. All rights reserved.

[File 654] US PAT.FULL. 1976-2008/OCT 30
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[File 781] ProQuest Newsstand 1998-2008/Nov 06
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[File 624] McGraw-Hill Publications 1985-2008/Nov 06
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[File 349] PCT FULLTEXT 1979-2008/UB=20081030/UT=20081023
(c) 2008 WIPO/Thomson. All rights reserved.

[File 623] Business Week 1985-2008/Nov 05
(c) 2008 The McGraw-Hill Companies Inc. All rights reserved.

[File 634] San Jose Mercury Jun 1985-2008/Nov 04
(c) 2008 San Jose Mercury News. All rights reserved.

SELECT (shift? or schedule?) (n2) (trad?? or swap??) and (rule? or policies or policy)
and (manager? or supervisor? or boss??) not py>2003

Processing

Processing

Processing

Processing

Processing

Processing

Processing

3568988	SHIFT?
5810739	SCHEDULE?
8553697	TRAD??
426265	SWAP??
14757	(SHIFT? OR SCHEDULE?) (2N) (TRAD?? OR SWAP??)
6350114	RULE?
2064725	POLICIES
6187033	POLICY
9017357	MANAGER?
898438	SUPERVISOR?

1786535 BOSS??

18958178 PY>2003

S1 1226 SELECT (SHIFT? OR SCHEDULE?) (N2) (TRAD?? OR SWAP??) AND (RULE? OR
POLICIES OR POLICY) AND (MANAGER? OR SUPERVISOR? OR BOSS??) NOT PY>2003

?

? rd

Processing

Processing

>>>W: Duplicate detection is not supported for File 654.

Duplicate detection is not supported for File 349.

Records from unsupported files will be retained in the RD set.

S2 1056 RD (UNIQUE ITEMS)

? s s2 and ((call () center?) or agent? or workforce?)

Processing

Processing

Processing

Processing

Processing

Processing

Processing

1056 S2

9664461 CALL

11872878 CENTER?

196485 CALL(W)CENTER?

4541255 AGENT?

707493 WORKFORCE?

S3 356 S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)

? s s3 and iex

356 S3

4820 IEX

S4 4 S S3 AND IEX

? d s

Set	Items	Description
S1	1226	SELECT (SHIFT? OR SCHEDULE?) (N2) (TRAD?? OR SWAP??) AND (RULE? OR POLICIES OR POLICY) AND (MANAGER? OR SUPERVISOR? OR BOSS??) NOT PY>2003
S2	1056	RD (unique items)
S3	356	S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)
S4	4	S S3 AND IEX

? t s4/3,k/all

4/3,K/1 (Item 1 from file: 996)
NewsRoom 2000-2003
(c) 2008 Dialog. All rights reserved.
0378031704 15PN0YYR
Workforce management

Green, Andy
Communications Convergence , v 9 , n 12 , p 42
Monday , December 31, 2001
Journal Code: AMFK Language: ENGLISH Record Type: Fulltext
Document Type: Scholarly Journal
Word Count: 2,656
Workforce management

Text:

Managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out.

There are many people who'd like to do away with "workforce management" (WFM). The term itself, we hasten to specify - not the application, which is increasingly...

Why is "workforce management" a bad term? For David Koosis, vice president of strategy at ISC, "workforce management" connotes images of workers in lockstep on an assembly line. According to Koosis, the...

...productivity tools developed to manage operator pools in the old Bell System.

But today's agents, Koosis notes, aren't like Bell's operators of 40 or more years ago. These days, contact center agents serve in diverse industries in a broad range of capacities. They've moved beyond fielding...

...work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. It means being flexible about schedules...

...Not just to "keep them happy," but because it's broadly accepted that an enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call center's operational capabilities. As a consequence, the classic assumptions that the old models made for...

...behavior of simple systems, e.g., a single queue delivering calls to a single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first ...

...contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing - you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its...

...but may not describe the spikes and other departures from the mean that characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based workforce management systems represent the call center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used ...

...is re-run until an optimal solution emerges. Simulationbased products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating...

...the day. So use of software that's exclusively simulationbased may limit the flexibility of call center response to fast-changing realworld conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of

the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem - solutions which...

...take sides in the "math vs. simulation" debate - most products aren't pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene...

...for making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends ...feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are tactical: great for rendering fast solutions especially if your center is in a fairly steady state. Simulations may be of greater strategic value - helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media - and helping you create policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone...

...Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center - routing, staffing and all and subject the simulation to an eventstream. Managers can tweak it until all their 'what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager, generating schedules that meet service-level parameters.
WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems distinguish themselves from one another in several different ways.

All vendors offer monitoring...

...service level to what the ACD has calculated, etc. And they let you compare proposed agent schedules to what agents are actually doing (real-time adherence). This data helps managers make intraday staffing decisions that keep the center within its service targets.

Some products offer...

...examine real-world data and troubleshoot schedules when QoS falls below objectives. Blue Pumpkin's Workforce Staffing module, for example, will tell managers that the least expensive way to meet service objectives is to hire two Spanish-speaking agents and one English-only agent, all three of whom are certified to offer tech support on products A, B, and C.

The next great frontier for workforce management is web-based features for letting workers contribute to the scheduling process. The web ...

...other equivalently skilled workers, or otherwise assert a sense of control - all without clogging a supervisor's desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and Empowerment) let employees swap shift time, online. The systems make changes to their databases automatically, while providing appropriate security constraints to prevent schedule foul-ups as might

happen if two agents with unequal skills were to swap spots without other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive scheduling solutions in humane ways. The Irene Enterprise WFM system, from ISC, lets you include policy constraints, such as limits on agent utilization during a particular timeframe, how breaks must be spaced, etc. This avoids producing schedules that satisfy cost and QoS requirements, but cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.

BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic ones, they have the advantage of producing staffing numbers that reflect the way your call center really operates. Blue Pumpkin's (Sunnyvale, CA - 408-8305400, www.bluepumpkin.com) Director Enterprise simulates agent schedules to find the combination that comes closest to meeting service level objectives. If Director Enterprise tells you that you're not meeting service goals due to agent resource limitations, its Workforce Staffing module suggests who you'll need to hire, with a breakdown by skills, to make up for the agent shortfall. If you want to see how the call center is performing, use Director Enterprise's Pulse. It displays real-time reports comparing forecasted statistics...

...forecasts come closer to matching centers' micro-trends. And its web-based eSchedulerR lets employees swap shift time without requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY - 212-477-8800, www.isc.com), lets you force solutions that not only meet service and cost objectives, but protect agents from burn-out. Their "agent optimization" approach reasons that theoretically optimal scheduling solutions may require optimal agent performance at all times an unrealistic goal - and that agents whose performance is characteristically good may be

overburdened by a scheduler that views them as...
...its talented group of mathematicians has created an accurate analytic model of a multi-skill call center. Also, it uses an adaptive learning algorithm that takes into account "team performance" to obtain...

...hosted version of the same software and is available on a fee-for-service basis.

IEX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX - 800-433-7692, www.iex.com) TotalView 2's embedded simulator integrates with IEX's multi-skill scheduler to create schedules that will meet service level goals. More than...

...module that can reforecast service levels during the workday and make recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. ...loads based on ACD statistics collected for similar past campaigns. Maxima's "correlated forecasting" lets manager's come up with better staffing level for non-average days. Of course, Maxima includes all the reports and graphs needed to show how the call center's actual performance compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned

agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue Pumpkin's Workforce Staffing tells you the skills of the agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation...

...change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also

lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to staffing, RightForce (Fort Lauderdale, FL 877-336-7231...

...service-level objectives, but in which timeslots are filled in with skill types, not actual agent names, while the operational schedule shows how the schedule can be covered from the center's actual agent pool. This reality-based schedule will appeal to cost-conscious managers since it indicates when the center is overstaffed for the week being planned, say, because...

...During the working day, when servicelevel goals are not met, real-time adherence reports give call center operations a current snapshot of agent activity, and the information they need to put the call center back on track.

GATHERING STATS

For workforce management software to analyze a multi-site call center, it needs to get hold of all the ACD statistics. If you consider that a "virtual" call center may have ACDs from different vendors spread over separate time zones, the problem of summarizing...

4/3,K/2 (Item 1 from file: 15)

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Titans of time management

Hollman, Lee

Call Center Magazine v16n4 pp:28-40

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Abstract:

Scheduling call center agents' work hours and vacation days can be time-consuming. Using workforce management (WFM) software to handle scheduling automatically can make keeping manual records of agents' work hours and activities feel like lugging a stone monolith by comparison. It is estimated...

...their customer bases. Starting in 2001, vendors experienced a very significant spike in interest among call centers due to the economic downturn. In 2002, it leveled off a bit. Now it looks...

Text:

Time waits for no one, and that includes agents

at your call center. To help ensure that they use their time efficiently, you can turn to workforce management software.

If you've ever visited Stonehenge in England or seen pictures of it...

...that you use a calendar from a hand-held PC or desktop PC at your call center to keep a record of when agents arrive, when they're absent and what work they're doing.

But scheduling agents' work hours and vacation days can be time-consuming. Using workforce management (WFM) software to handle scheduling automatically can make keeping manual records of agents' work hours and activities feel like lugging a stone monolith by comparison.

Paul Stockford, chief...

...their customer bases.

"Starting in 2001, we experienced a very significant spike in interest [among call centers] due to the [economic] downturn," says David Van Everen, product line manager with Genesys (Daly City, CA). "In 2002, for us, it leveled off a bit. Now..."

...outbound campaigns, most new apps also collect data from predictive dialers to determine how many agents you need.

Most of the new apps also let you communicate with agents and employees through the Internet or your call center's intranet. Agents and supervisors can view schedules through a Web browser or be alerted to sudden schedule changes. That's an especially useful feature for multi-site call centers and remote agents. And agents can submit their requested work hours or

trade shifts with each other on-line, pending your approval.

WORKING WITH WFM SOFTWARE

Workforce management software can't do all the thinking for you. You first must decide on...

...allow you to consistently meet staffing needs, while avoiding the trap of assigning too many agents.

The first criteria, says Larry Skowronek, senior manager of product management with Aspect Communications (San Jose, CA), is (customer] service levels. (Call centers typically define this as the percentage of calls that agents must answer within a given timeframe.) The second criteria is agent labor costs.

"If you're meeting service levels but agents are only occupied 25% of the time, you're wasting money," says Skowronek. "If they...

...I would probably like to see two years," says Bob Brittan, senior product and marketing manager, Symon Communications (Sugar Land, TX).

Brittan explains that creating forecasts based on an entire year...

...upward trend in previous call volumes, the hotel's forecasts indicated the need for more agents. Goes discovered that the company decided to sell four of its 30 hotels. That decision...

...reduced call volumes, and thus also the accuracy of the forecast.

Most WFM software offers agents freedom to select their preferred work hours. Although some call center managers are wary of this practice, it makes good business sense. "Turnover is always expensive, so...

...time or missing service level targets."

Reducing turnover isn't the only incentive for enabling agents to request scheduling preferences.

"There's a correlation between agent morale and turnover, but there's also a correlation between morale and effectiveness," says Tiffany Riley, vice president of marketing, Blue Pumpkin (Sunnyvale, CA). "The happier that agents are, the more likely they're going to be effective on the phone with customers..."

...priced versions of their products that can simply help you set basic schedules for when agents should handle phone calls.

Conversely, if you require more sophisticated WFM software, you can choose from products that enable you to set agents

' schedules for handling messages from all media, and that can help you assign agents to work hours based on their skills. Here's a look at some of the...

...1 provides you with two scheduling options. The upgrade lets you schedule based entirely on agents' preferences or to meet forecasted call volumes.

The app includes an Intra-Day Performance chart...

...your forecasts, schedules and service goals. The Intra-Day Time Line chart lets you view agents' daily schedules, including activities like answering calls or training, and their adherence to schedules.

eWorkforce...

...6.1 includes two optional modules: eSchedule Planner and Aspect Notification Server. The first lets agents request changes to schedules by e-- mail and receive an automatic approval or refusal based on predefined rules (e.g., one limiting to ten the number of agents who can be on vacation simultaneously). If a requested change is approved, Aspect Notification Server automatically alerts agents, supervisors and others of the change by e-mail.

In February 2003, Aspect introduced Scheduled Callback...

...that allows customers to schedule a time and date to receive a call from an agent by entering options from a touchtone menu. Scheduled Callback is available as a standalone product. But you can use it with eWorkforce Management 6.1 to forecast periods of agent availability and schedule customers' call backs during those times. eWorkforce Management 6.1's Real-Time Adherence and Agent Productivity modules help you to ensure that agents follow schedules and to evaluate their performance, respectively. Real-Time Adherence lets you know if agents are early or late to work and how long they spend on scheduled activities such as lunch breaks, training sessions and helping customers. Agent Productivity triggers alerts so that agents know when they've spent more time than necessary on an activity.

Some WFM vendors offer different versions of their software to appeal to call centers of varying sizes and budgets. Example: Blue Pumpkin, which offers two versions of Blue Pumpkin Director, the flagship product of the Workforce Optimization suite.

The Essential edition of Director is for call centers that need basic forecasting and scheduling functionality and allows you to create and manage schedules following basic work rules for single or multi-skilled agents. Essential also lets you assign agents to work specific shifts based on their skills.

The more advanced Enterprise edition includes all...

...forecast other types of media, including e-mail and text chat volumes,

and to schedule agents to handle each type of contact. Enterprise also lets you generate forecasts and schedules for multi-site call centers, and create hypothetical scenarios to see how altering agents' schedules affects service levels. Using Director's WebEnabled Self-Service feature, agents can negotiate their schedules online. They can also save a record of schedule change requests ...

...then view the record from a Web page.

Blue Pumpkin introduced three new apps for Workforce Optimization: Activity Manager, Advisor, and Planner.

Activity Manager integrates with multimedia apps so that agents can respond to e-mail, chat and voice-over-IP calls, in addition to phone calls, from one desktop interface. Agents can send messages to you through a Web browser to request changes to their schedules and to indicate if they're having difficulties.

Activity Manager lets you view from one screen the agents view are working and the tasks they're handling; their scheduled activities for the day or week; and how much you're paying them. You can integrate Activity Manager with your payroll software to automatically calculate agents' pay for the hours they work.

Advisor compares agents' real-- time performance statistics to service goals and to their co-workers' performance results. You can use Activity Manager and Advisor together to trigger historical and real-time alerts when agents fall short of a goal (e.g., average handle time for a text chat session). The Benchmark feature lets you compare performance statistics among agents, teams of agents or sites at multi-site call centers.

To help you understand what effects scheduling changes might have on your call center's service levels and budget, Planner lets you create a series of sample schedules so you can determine the most efficient and least costly staffing strategy for your call center. You can e-mail these schedules to call center managers and executives within your organization to invite their feedback on potential schedule changes. Planner also...

...long-term forecasts monthly, quarterly and annual volumes for phone calls and multimedia contacts.

An agent's schedule created with Genesys' Workforce Management.

When CenterForce Technologies (Bethesda, MD) acquired WFM software vendor RightForce in November 2002, the...
...forecasts staffing requirements for outbound campaigns.

With RightForce's Outbound Staff Planning, you can schedule agents

for each campaign based on their skill sets, so that, for example, agents with sales experience handle sales calls. And you can set service goals for campaigns based on historical data, like the average duration of completed calls and your call center's previously successful live contact rates.

RightForce is Web-based software that includes a database...call volumes. The app can generate forecasts for up to five years. You can enter agents' absentee dates to automatically revise schedules to find reps who can serve as replacements. And you can monitor and compare the number of agents working to the day's staffing requirements.

As to optional modules, MessageNet enables you to send popup messages to

agents and specify the duration of time the message should remain on their screens. Agent Empowerment lets agents submit scheduling preferences to you on-line.

Event Monitoring allows you to monitor events like e-mail and text chat, in addition to phone calls. Vacation Administration allows agents to request vacation days; and it lets you set rules to automatically approve or decline their requests. You can also integrate Vacation Administration with payroll...

...software that routes inbound and outbound calls, e-mail and text chat, also includes a Workforce Management module that works as a standalone product. WFM comes with the Genesys Framework, apps which collect data from phone switches, e-mail servers and predictive dialers.

Genesys Framework provides Workforce Management with a database for storing agent profiles, including their skills. Framework also includes T-Server to collect data from sources like...

...Server collects into real-time and historical statistics for creating forecasts and schedules.

In addition, Workforce Management lets you use the data to create What-If scenarios. For example, if you...

...to answer 80% of calls in 20 seconds), the software will automatically determine how many agents you need. You can also create scenarios to estimate future staffing needs for up to two years.

Workforce Management additionally provides skills-based scheduling options. You can schedule agents to work given shifts based on their skills and proficiencies. So if you employ agents who speak Spanish, you can rate their fluency on a scale of one to ten...

...receive the most calls from Spanish-speaking customers at a given hour,

you might schedule agents with a minimum Spanish proficiency rating of five to work during that time. Or you can assign agents to shifts based on their skills alone, regardless of proficiency.

After you're finished creating schedules, Workforce Management enables you to view them on-line. You can edit agents' schedules and monitor their realtime schedule adherence and performance statistics through a Web browser. Agents can also view their schedules through a browser. And they can complete on-line forms to enter their schedule preferences or to request vacations.

To help you keep agents abreast of new or revised schedules, GMT (Norcross, GA) upgraded GMT Planet - Jupiter 8.2. You prepare a list of agents' e-mail addresses for scheduling alerts through a wizard. Alternatively, agents can receive e-mails containing a link to a Web page where they can view the changes.

As with Jupiter 8.1, the current version enables you to schedule when agents answer e-mail and make outbound calls. You can set service goals requiring agents to respond to each e-mail message within one to 72 hours. And you can track agents' progress with a chart divided into three sections. The top section displays daily e-- mail volumes as compared to the number of messages that agents answer. The center section details the backlog of unanswered e-mails remaining at the end of each day. The bottom chart displays the hours that you've scheduled agents to handle e-mail.

When you generate schedules for outbound campaigns, you can follow the...

...for e-- mail scheduling. The top of the chart displays the number of outbound calls agents make to the desired number of calls. The remaining two sections are reserved for the number of calls agents must make to meet service goals, and the shifts during which agents should make calls.

GMT also lets you measure agents' real-time schedule adherence. The software includes a One-- Click Sick feature that lets you automatically find substitute agents who have the same skills as agents who call in sick. If you're on a tight budget you can opt for...

...s latest features but that can create forecasts and schedules based on inbound call volumes.

IEX (Richardson, TX), one of the first WFM vendors to offer a Web browser-based component, upgraded the Web Station module of its TotalView Workforce Management suite. WebStation enables you and agents to view their schedules and performance statistics on-line.

The latest version of WebStation allows agents to bid on-line for the shifts they want. Agents view available schedules for themselves and their co-workers. They complete a Web form to enter the shifts they

want in order of preference. The module then assigns agents to shifts based on pre-set criteria. You can, for example, prioritize which agents receive their scheduling preferences based on their seniority and their performance statistics. Afterward, agents can view their schedules on-line.

New to WebStation is Activity Tracker. The feature lets you keep tabs on whether agents are logged in to WebStation to receive schedule change notifications and view their performance statistics. Activity Tracker also lets you confirm that agents viewed and acknowledged schedule changes. TotalView automatically sends a pop-up alert when you change their schedules. You can also view when agents bid on a given shift or trade shifts with co-workers.

IEX also upgraded TotalView Workforce Management by adding a Change Management feature, which lets you make changes to agents' schedules in real time. The module displays data from a chart, including call volumes and the number of calls answered or abandoned. Based on that data, you can assign more agents to answer calls during peak call volume hours or assign agents to training or other duties at less busy times.

When you have both call center managers and agents changing schedules, it's not easy keeping track of who makes what changes. The Audit Trail module keeps records of all changes. When you view agents' schedules, Audit Trail displays a pop-up screen that contains every version of each schedule...

...see the original schedule alongside the later version with revisions made by yourself and by agents when they call in sick, go on vacation or successfully bid on different shifts.

Key features of TotalView Workforce Management include forecasting, scheduling and hypothetical staffing scenarios. The last helps you estimate how much an event might impact call volumes and, therefore, how many agents you'll need. The WebStation and Audit Trail modules are optional. A third optional module, RealTime Adherence Monitoring, checks that agents stay on schedule.

The most recent upgrade to ISC's Irene automatically sets schedules for agents at multiple sites based on the number of agents at each site and the business hours at their respective time zones. For example, if your company has call centers in Los Angeles and New York, Irene can schedule every agent in the Los Angeles center to answer calls immediately after the New York center doses.

Irene's In-Charge chart provides a view of call center activity, including call volumes and the number of agents answering calls at a given time. In-Charge divides each day into 15-minute intervals, lists the names of agents who work during each shift and compares their current speed of answer and service levels against your service

goals. Irene also enables agents to view their schedules and those of coworkers. Agents can request to trade shifts with each other, with your approval, by completing an on-line form.

ISC offers hosted...

...To best use WFM software, you need to collect the most relevant information from your call center's historical data. Monet from Left Bank Solutions (Los Angeles, CA) includes the Quick Data...

...might include information about your center's daily and hourly call volumes and the time agents require to perform post-call wrap-up tasks.

The most recent upgrade to Monet includes a real-time monitoring and reporting feature to help you track agents' performance. The app also lets you generate forecasts and schedules for handling e-mails and other noncall activities. You can view unscheduled agents within a team of agents and assign them to other teams. Or you can assign agents as primary and secondary members of specific teams. Monet enables you to work with an unlimited number of individual agents and agent teams.

You can integrate Monet with your phone switch. The software collects historical data from your PBX every 15, 30 or 60 minutes. And you can print and e-mail agents' schedules and reports that you create, in addition to exporting your reports to Adobe Acrobat and Microsoft Excel formats.

Monet lets you establish an employee database to save information about agents like their skill sets, shift preferences and the hours that they're available to work...

...meet real-time fluctuations in call volumes. You can also create an unlimited number of agent groups with their own service level objectives.

The paradox of WFM software is that although...

...you select options for forecasts and schedules like the dates that they cover and the agents or groups of agents for whom the schedules or forecasts are intended. You can also set rules to determine who can view completed forecasts and schedules. And you can complete multiple tasks...

...only do that, but also e-mail and print copies of those schedules for the supervisor of each team.

The Vantage Point upgrade also lets you update forecasts and current schedules to accommodate sudden staffing changes. If you're faced with a emergency, like having six agents call in sick on the same day, the software can recalculate the day's staffing needs and modify agents' breaks, lunches and work assignments to compensate for the labor gap.

Agents receive their new schedules by e-mail or a through a screen pop notice that...

...licensed formats, also lets you calculate staffing requirements based on forecasted call volumes, handling times, agents' skills and service levels that you set, such as average answer times and acceptable percentages for abandoned and busy calls. The software also features modules that let you check agents' schedule adherence and generate reports comparing forecasts to actual call volumes.
The Agent

Power WFM suite from PRM comprises five modules. Planning & Scheduling, the core module, collects call...

...lets you view hypothetical scenarios to determine how changing one variable, like the number of agents working at your call center, affects your center's performance.

Two Agent Power modules, How Goes It? and Real-Time Agent Status, collect data from your phone switch at varying intervals. How Goes It? collects the...

...at half-hour intervals, enabling you to save it and to view graphs measuring your call center's performance metrics. Real-Time Agent Status monitors current phone switch data so that you know which agents are logged in, taking calls, holding calls, or completing post-call wrap-up work.

The Agent Performance module lets you benchmark agents against performance goals and each other, based on criteria (e.g., the number of calls answered per hour or the percentage of time that agents spend helping customers on or off the phone). If you use readerboards at your call center, Info Screen lets you display phone switch statistics from them.
Although Symon Communications is well...

...Contact Center Community suite. The Community Skills module collects data from your phone switch, including agents' skill sets and call volumes. So if you've programmed your switch to route calls to separate teams of agents who speak English and Spanish, Community Skills can generate forecasts and schedules for both teams based on the information from your switch.

You can check agents' adherence to their schedules with Community Watch. The module lets you set thresholds for permissible lapses in how closely agents follow their schedules, and for triggering an alert message on your PC after agents exceed those thresholds. If, for example, an agent is scheduled to answer calls at 1 pm after a lunch break, you can set a threshold to give that agent an extra five minutes to return from lunch. Community Watch also enables call

center managers working with different teams of agents or at different sites to view each other's agent schedules.

Agents enter vacation and sick requests for your approval through Community Calendar, an on-line bulletin board. Agents can also request changes to their work hours through Community Calendar and browse co-workers' requests for schedule changes to trade shifts with them. The module also lets agents find out if you approve or deny their scheduling requests or if you've yet...

...feature to lhollman@cmp.com.

MANAGEMENT SOFTWARE

Simplified Seating

Throughout this article, we discuss how workforce management software can help you to organize agents' time. But Callcenter Performance Management (Marietta, GA) takes a unique approach by enabling you to organize the seating plan at your call center for agents and their supervisors.

Callcenter Floor Manager lets you save individual profiles about supervisors and set schedules for them. The software then assigns supervisors to workstations based on their skills, the hours they're scheduled to work or other factors.

Floor Manager can work especially well if you divide agents into teams handling specific calls (say, one team that handles inbound customer support and another for outbound sales calls). You can use Floor Manager to place supervisors who have customer support skills with inbound agents, and supervisors who have sales skills with outbound agents. You can also create alternative seating plans if agents and supervisors at your center share desks.

Callcenter Performance Management

also offers Callcenter Bid Manager, a module that works with software from vendors like Aspect, Blue Pumpkin and IEX. After you create schedules using those vendors' WFM apps, agents can bid for the hours they want to work using Bid Manager. Agents can enter the times they want to work in order of preference; and you can set rules to determine what times they get. Bid Manager then automatically enters agents' approved bids into their schedules.

But doesn't most WFM software already enable agents to bid on shifts? Dick Lexmond, president, Callcenter Performance Management, says yes, but explains that once agents bid on shifts using software from the leading WFM vendors, their schedules are completely re-aligned.

"They don't allow agents to keep the hours they already have," says

Lexmond. "With Bid Manager, if I'm an agent who works
Wednesday to Sunday afternoons and don't get my preferred hours, I can...

...current hours and still have an opportunity to bid for a better
schedule."

Managing Your Workforce Management Options

With so many choices available, finding the right WFM software for your
call center is no easy task. To learn more about some of your
options, contact the companies...

...888-GENESYS

www.genesyslabs.com

Global Management Technologies (GMT)

770-416-6000 www.gmtcorp.com

IEX

800-433-7692/972-301-1300

www.iex.com

ISC

212-477-8800

www.isc.com

Left Bank Solutions

310-207-6800

www...

Descriptors:

...Call centers; ...

...Workforce planning

Classification Codes:

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Workforce optimization takes center stage

Anonymous
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Workforce optimization takes center stage

Abstract:

A lot is happening in the realm of workforce optimization, whose purview includes scheduling, quality assurance, training, and performance analytics. So it is hardly...

...Dallas fall within this domain. One of these is a monitoring system. The other is IEX's TotalView workforce management software, the latest version of a module that lets agents trade and bid for schedules. A number of products let agents view schedules from within Web browsers, but few offer the variety of ways in which TotalView WebStation lets agents bid for and trade schedules online. With bidding, WebStation presents schedules that are available to agents in a group. A ranking is specified for each agent. The higher the ranking, the more likely the agent is to receive the schedule he or she bid for.

Text:

Workforce optimization tools grabbed the limelight among the new products we saw at the first call center event of 2003.

A lot is happening in the realm of workforce optimization, whose purview includes scheduling, quality assurance, training and performance analytics. So it's hardly...

...re planning to test-drive. The other, the latest version of a module that lets agents trade and bid for schedules, rounds out a well-established workforce management tool.

Workforce optimization bears close watching. We'll examine this growing area in a special supplement due...

...The supplement will be available on our Web site around the time of our spring Call Center Demo and Conference next month in Orlando (www.callcenterdemo.com). We invite you to join us in discovering more exciting trends as the year progresses.

IEX'S TOTALVIEW WEBSTATION 3.5

We've kept close tabs on IEX's (Richardson, TX) TotalView workforce management software.

What really got our attention in Dallas is the latest version of TotalView WebStation that comes with TotalView. A number of products let agents view schedules from within Web browsers, but few offer the variety of ways in which TotalView WebStation lets agents bid for and trade schedules on-line.

With bidding, WebStation presents schedules that are available to agents in a group. You specify the ranking for each agent. The higher the ranking, the more likely the agent is to receive the schedule he or she bid for.

You also provide agents a certain timeframe in which to submit bids. WebStation allows agents to change bids within the timeframe you indicate. Thereafter, the software automatically assigns schedules, and notifies agents when it has done so.

We're most impressed with WebStation's options for trading schedules. Agents can request two-way trades, where they switch schedules. With one-way trades, agents offer schedules to others. Agents also indicate which dates and times they're interested in.

As a supervisor, you can indicate whether agents' skills, as you've defined them, have to match for a trade request to be viable. You can also establish which agents are permitted to trade. And you can set rules to make sure agents don't exceed a certain number of hours or ask for trades after payroll has gone through.

WebStation automatically informs agents if it accepted their trade requests. If you prefer, you can disable this feature and be the final arbiter of trades.

Although WebStation lets agents switch schedules, the software doesn't enable them to request vacation time or other changes to existing schedules through Web browsers. That capability is for another release.

IEX has learned from clients that agents' scheduling preferences rarely change. So agents do not indicate preferences through WebStation.

WebStation continues to include StatsViewer, which lets agents see statistics (like average handle time) that usually come from your phone switch. StatsViewer displays comparisons between an agent's statistics and those of others within the same group or center.

Lastly, WebStation employs...

...plug-ins to load will appreciate how much smoother Web browsers function without them.

For call centers that have already invested in TotalView 3.5, the additional cost of TotalView WebStation ranges between \$25 and \$55 per agent 800-433-7692/972-- 301-1300, www.iex.com

ROBOTEL'S

Version 3.5 of IEX's TotalView WebStation lets agents trade schedules from a Web browser.

SMARTCONTACT CENTER

The call center market boasts a wide array of vendors offering combo coaching, recording and monitoring of voice...

...to fame on a new product dubbed SmartContact Center. The solution, which debuted at our Call Center Demo and Conference in Dallas, intrigued us enough that we plan to review it in...

...Drive.

Powering Smart CC is a sleek, CB radio-like unit that sits under each agent desktop. This telephone user interface connects to the agent's handset and PC audio connection, capturing both voice and screen interactions.

A second box...

...also connects to the PC, handling video, keyboard and mouse communications. Data passes from the agent desktop to a Smart CC switch that links to the supervisor's workstation. The data travels through dedicated cabling, thereby off-loading high-bandwidth traffic from ...

...also operates independently of the PBX.

So how does the product work in action? When agents need help assisting a customer, they press a call button on the telephony interface box. At the supervisor's PC, which visually models all agent positions, a flashing raised-hand symbol appears; and a tone alerts the supervisor to the call. The supervisor can monitor the call by clicking his mouse on the flashing agent station icon.

When the going gets tough, agents can hit the call button (furthest right) to alert a supervisor.

Supervisors then have three options. They can (1) use the coach button to "whisper" to the agent without the caller hearing; (2) hit the intervene button to talk to both the agent and customer; and/or (3) select the keyboard/mouse button to take control of the agent's PC.

Supervisors need not wait for agents to hit the panic button

before swinging into action. They can sequentially scan all agent workstations for a fixed time interval (30 seconds or more). The supervisor can then elect to hear and watch an agent's voice and screen interactions. Using a 30-second interval, the supervisor can monitor 15 agents over 7.5 minutes.

Robotel also bills Smart CC as a training tool. To that...

...of the trainees.

Robotel offers with Smart CC three additional options. Light Audio Logging lets supervisors record, archive and bookmark conversations on the fly. A Multiple Supervisor's Option equips agents with multiple call buttons to connect to different supervisors and remote live monitoring lets a supervisor and a remote caller listen to agent/customer communications.

In total, Smart CC is a powerful quality assurance tool. To judge by...
...British Gas), we're not alone in that view.

Smart CC supports up to 100 agents. Pricing, including installation and training, ranges from \$1,200 to \$4,400 per station. 866-- 762...

Company Names:

IEX Corp

Geographic Names:

Descriptors:

...Workforce planning...

...Call centers;

Classification Codes:

4/3,K/4 (Item 3 from file: 15)

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The time machine

Fleischer, Joe

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Abstract:

For a call center, the practice of workforce management means finding time for agents so that they are collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls. Once you establish your practices, you are ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like. But workforce management entails more than plotting out a set of timelines on a computer. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules.

Text:

...techniques to enable your center to gain maximum efficiency when scheduling the best times for agents to communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest call centers in the world. And last fall, it became a part of the 69-- agent call center for the gas company that serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding time for agents so that they're collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls.

Once you establish your practices, you're ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like.

From a mathematical standpoint, scheduling software strives to give your center the most coverage with the fewest agents. Scheduling tools typically work closely with forecasting software, which gathers statistics about service levels and...

...with forecasting software. Many can import and export schedules to and from spreadsheets. Some complement workforce management with call routing or reporting software. One vendor, Aspect (San Jose, CA), plans to

allow agents' schedules to adapt automatically to circumstances like sudden swings in the number of calls or staff.

Call centers of all sizes share the same motivation for using software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of timelines on a computer. Since you...

...besides efficiency come into play.

One factor to consider when building schedules, for example, is agents' preferences. That applies during good times, when labor markets are saturated, and during difficult times, when corporate budget cuts restrict the number of agents you can hire. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules. In workforce management, as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations...

...people, including volunteers who collected tickets from spectators or manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements and figure out the most feasible times for certain agents to answer certain types of calls. In centers with hundreds of seats, forecasting and scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraetz, director of marketing for IEX (Richardson, TX), referring to clients who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to establish a group of schedulers for the company at one location who collaborate with supervisors at each site. This arrangement is currently in the works at a client of consulting...

...separate units. For example, four of the centers created schedules with spreadsheets; the remainder used workforce management software from Aspect. Each site also employed its own scheduler and used different methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer recalls, that they drew up petitions...

...that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Plourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of...

...How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost--effective for their companies and reasonable for agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by \$1.5...

...says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out subjectivity and the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules. Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with this approach. "Our theory is that ultimately, final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level planning that includes a company's human resources and fiscal departments, not just IT and call center managers. "The budget is not necessarily married to operations," says Pipkins' chief financial

officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of call center software you purchase, whether the software is for monitoring agents' calls or enabling them to look up customers' records.

Yet CPM's Teamer finds that call centers tend to treat workforce management software as an expensive employee database. "Most people don't use it as a...

...SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of call centers don't necessarily depend on specialized software to schedule agents. One reason is that the software, if it starts at tens of thousands of dollars, is prohibitively expensive for single-site call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is...

...option for the short term, although it's not widely available. Several vendors offer hosted workforce management tools, as we describe in our product updates below.

Even with the presence of less expensive software, it's hard to shake a general perception that workforce management is only for centers with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff to administer schedules, let alone plan for how much staff they need for the next year. Supervisors in these centers are often the people who, on top of other responsibilities, devote the equivalent of a full-time job to assigning agents to shifts. Unless it's budget season, forecasting is not the top priority, nor is...

...a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraeetz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls are less subject to chance. "It's...

...of ACD reporting tools, also offers software for scheduling outbound calls.)

Beyond forecasts and schedules, workforce management software addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can share information with payroll systems. Hansen's (Dallas, TX) ResourcePro software, for instance, automatically updates agents' schedules and applies the changes to payroll records if agents agree to work overtime.

To ensure that companies develop the discipline of forecasting and scheduling...

...software, a number of vendors offer training and other professional services through partnerships with The WorkForce Management Group, a consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we should point out that most

workforce management tools share certain features in common, depending on the size of the centers that...

...forecasting and scheduling tools that are in place at large centers - Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow agents to view schedules within Web browsers. Most of these products let agents outline the schedules they prefer. In the past few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify that agents are following their schedules.

One feature that's widely available with many products is the...

...a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients' call centers block out time for agents to answer e-mail the same way they block out time for training or breaks. That is, these centers designate certain agents to answer e-mail separately from calls, rather than creating schedules where agents respond to e-mail and calls together. Nearly all vendors we interviewed, large or small, incorporate agents' preferences within schedules, given increasing demand for this capability.

That's among the new features...

...eWorkforce Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all agents, the current version of eWFM permits agents to state individual preferences. The one potential drawback, says Larry Skowronek, a senior product manager with Aspect, is that you have to rule out the schedules or shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from Aspect, agents can use the system to adjust their schedules.

The process, which is possible through an optional module called eSchedule Planner IVR (eSP IVR), is similar to what occurs when agents attempt to change their schedules on-line. Agents call the IVR system and key in IDs and passwords to hear their schedules. They...

...time off, sick leave or jury duty) that they can apply to these changes. After agents match up timeframes with exception codes, the agents and their supervisors automatically receive notification as soon as the system determines if the changes can go through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to check back about their schedules. Aspect has introduced a notification server that, by default, uses e-mail to inform agents, supervisors, plus anyone else who needs to know, about adjustments to schedules. The company was integrating...

...press time. Other applications of notification, says Aspect's Showronek, are e-mail alerts when agents' adherence or service levels drop below a certain percentage. Aspect's goal, adds Showronek, is...

...s workflow engine, and Aspect's ACD. In theory, this would enable schedules and routing rules to automatically adapt to sudden peaks and valleys with staffing levels or call volumes. In most centers, though, supervisors and agents prefer to commit to schedules they've set up, and agents have agreed to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call in to an IVR...

...budget for staff before you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The software now lets them apply the same changes to multiple schedules simultaneously rather than...

...we mean those that are new to specific products, For example, some, but not all, workforce management software vendors include budgeting tools. Creating budgets, forecasts and schedules is complex, but it...

...That's because you have to determine the most cost-effective distribution of calls to agents at your company and to the agents the outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with workforce management. Its standalone software, Blue Pumpkin Planner, helps you consider scenarios for budgeting staff, including...

...outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to introduce modules to track agents' attendance and performance, plus their work off the phone.

TEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this...

...TotalView: You can generate adherence reports from the previous day. To ensure you know if agents are up-to-date about when they're working, the software now sends supervisors an immediate notification when agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools is the delivery of on-line courses to agents' PCs when agents have specific times blocked out for training, or when intraday reports indicate a lull in calls. In working with Knowagent's KnowDev Manager, which sends courses to agents, TotalView factors in scheduled training time when calculating adherence. (See last month's issue for further background on training software.)

OdySoft offers workforce management software from its headquarters in Canada, and resells the software in the US through...

...software directly from OdySoft, it's called Calabrio.

The current version of the software enables agents to cite their preferences for shifts. This month, the software will let agents view, trade or bid for schedules on-line. By this summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with schedules, your rules can reflect criteria like agents' seniority, and agents can select where they prefer to sit. Also new is the latest version of a separate vacation module, which allows agents to put in for floating holidays and comp time as well as vacation days.

Vantage...

...GMT, ISC, PRM, Portage and RightForce - give you plenty of flexibility in how you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which individual agents or what percentage of agents should receive their first preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which agents or percentage of agents should receive their top choices of shifts, based on seniority or other factors. Besides preferences, scheduling tools for small centers also let you factor in agents' proficiency to handle certain types of calls. A new

feature of RightForce's ...you to set a timeframe for how long it usually takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time.

With vacation time, agents have the choice of joining a waiting list if the dates they asked for are not available.

You install most workforce management software at your center. ISC is unusual in that half of its customers prefer...

...call routing software that meshes with their forecasting and scheduling tools. Other vendors complement their workforce management products with call reporting software.

With the help of Mission Control, an optional module...

...historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e-mail messages to let them know if it's possible to fulfill the requests, subject to your center's rules. If a request is not feasible, the module presents agents with alternate schedules.

Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce management tool, incorporates a repository of ACD statistics, plus two other products from Symon...

...forecasting and scheduling tools. We'll keep you posted on the evolution of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to...

...press time.

Aspect

Aspect's software begins at \$20,000 per server and \$300 per supervisor. The starting cost for each agent is \$100 if you use the software to do forecasts, build schedules and compare data...

...Director and PrimeTime Planner together start at about \$225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if

your center has one site and...

...have multiple sites. Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at \$20 per month for each agent you schedule, plus an initial set-up fee of \$5,000. ISC declined to cite...

...time adherence, \$4,500 to capture data from one ACD, and \$4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and...

...of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs \$15,000, plus travel expenses for on-site installation. For intraday reports...

...software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at \$4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention,

AgentTime does
not directly import statistics from ACDs.
Symon

Pricing for Contact Center Community, including the...

...that begins at 15%.

To sum up, the more features, the higher the price. This rule applies to most products, especially workforce management software.

That's why your best bet is to buy only what you need...

...already have routing software or other complementary products from the same company that provides your workforce management tools.

Descriptors:

Call centers; ...

...Workforce planning

Classification Codes:

? t s3/ti/all

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Masters of Innovation: Who survives in this new climate? The innovators. They don't just have new designs. They passionately pursue new ways to serve their customers

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Time's up

3/11/95 (Item 95 from file: 996)

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SLEEPERS NO MORE: TEAMS POISED FOR NEXT STEP GIANTS: IN DIVISION FLUSH WITH ACES, THEY'RE READY TO DEFEND CROWN

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Sitkins 100

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now we can work it out :Trying to strike a balance between family life and the demands of your employer can be a taxing problem for many employees in Britain. The Government is seeking to improve matters, but there is still a way to go before we gain equilibrium with other countries in Europe

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now we can work it out :Trying to strike a balance between family life and the demands of your employer can be a taxing problem for many employees in Britain. The Government is seeking to improve matters, but there is still a way to go before we gain equilibrium with other countries in Europe

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Small and Medium-Size Businesses in Pursuit of the Global Economy: So lo? Internet? Low-Cost Assistance? Trade Mission?

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Global trade and health: Key linkages and future challenges

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SELIG PROPOSES A "COMPETITIVE BALANCE DRAFT" BASEBALL: WORST EIGHT TEAMS OVER LAST 3 YEARS MAY BENEFIT FROM TOP 8.

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COMMISSIONER WANTS MORE BALANCE Selig wants baseball's eight worst teams to draft players from top eight squads

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Selig proposes a new draft

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SouthBanc Shares, Inc. Announces Quarterly Dividend

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Interactive Software Launches Latest Version of e-FORCE; Award-winning workforce management solution adds key features - Propels new customers and partnerships.

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Ukrainian fuel and energy minister interviewed

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3/II/125 (Item 125 from file: 996)
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Aspect Communications' Market-leading Workforce Management Software Honored as Product of the Year

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A Panoramic View Of What's High-Tech In Florida.(Industry Trend or Event)

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? d s

Set Items Description

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S2 1056 RD (unique items)

S3 356 S S2 AND ((CALL () CENTER?) OR AGENT? OR WORKFORCE?)

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Event Names: CORPORATE FINANCIAL DATA; FORECASTS; LABOUR RELATIONS; PERSONNEL MANAGEMENT; PRODUCTIVITY; THEORETICAL ANALYSIS

Industry Names: COMMUNICATIONS TECHNOLOGIES; INTERNET

Journal Region: USA

Journal Subject: Advertising and Marketing

Workforce management

Text:

Managing today's diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. There are many people who'd like to do away with "workforce management" (WFM). The term itself, we hasten to specify - not the application, which is increasingly...

Why is "workforce management" a bad term? For David Koosis, vice president of strategy at ISC, "workforce management" connotes images of workers in lockstep on an assembly line. According to Koosis, the...

...productivity tools developed to manage operator pools in the old Bell System.

But today's agents, Koosis notes, aren't like Bell's operators of 40 or more years ago. These days, contact center agents serve in diverse industries in a broad range of capacities. They've moved beyond fielding...

...work has become a strategic business asset.

Managing such diverse (and expensive, and turnover-prone) agents means more than just clocking people in and out. It means being flexible about schedules...

...Not just to "keep them happy," but because it's broadly accepted that an enfranchised workforce is more loyal and more productive.

Meanwhile, computer telephony (remember?) improved the call center's operational capabilities. As a consequence, the classic

assumptions that the old models made for...

...behavior of simple systems, e.g., a single queue delivering calls to a

single-skilled agent pool. But as the Erlang formulas were bent to model non-classic systems, they became more and more unwieldy. How could it handle a call center where some agents are trained to sell only product A, others A and B, where agent handling times vary based on skill level, and where queue disciplines evolved from basic first ...

...contact center in two ways. First (obviously) software has become more and more important in workforce management and staffing - you don't want to work out the logistics using a vanilla Erlang C calculator (web-based or otherwise) and graph paper. Second, the logic of workforce management software has itself undergone rapid evolution. While Erlang has certainly not been abandoned, its...

...but may not describe the spikes and other departures from the mean that characterize a call center's shortterm behavior.

The "simulation" school believes that time itself must be accounted for. Simulation-based

workforce management systems represent the call center as an event-driven/event-generating state machine into which policies and business rules, agent schedules, ACD routing rules, and traffic patterns are input. A virtual clock then ticks away as the software mimics the call center in operation. Heuristics (rules of thumb for how to improve a schedule while observing appropriate constraints) are then used ...

...is re-run until an optimal solution emerges. Simulationbased products include those from Blue Pumpkin, IEX, and ESI.

Which is better? Depends on your priorities. Analytic systems are faster at generating...

...the day. So use of software that's exclusively simulationbased may limit the flexibility of call center response to fast-changing realworld conditions (e.g., that day when five key agents call in sick). But the results produced by simulations are more representative of the real world (though your mileage may vary). And if you can believe anecdotal reports, simulation-driven workforce management products may, over long application (and improvement through feedback of actual call center stats), let you achieve marginally better solutions to the cost-vs.-QoS problem - solutions which...

...take sides in the "math vs. simulation" debate - most products aren't

pure plays. Analytic managers may use heuristics and other adaptive techniques to refine performance. ISC's analytic product, Irene...

...for making quick-and-dirty schedule adjustments without rerunning a half-hour simulation sequence. For example, IEX's simulation-based TotalView workforce management product includes an Intraday Management module that recommends ...feel that analytics and simulation both have a place in the toolkit of the ambitious call center manager. Analytic tools are tactical: great for rendering fast solutions especially if your center is in a fairly steady state. Simulations may be of greater strategic value - helping managers infer the significance of subtle factors, of growth, of the addition of new skills to the mix, new campaigns, or new media - and helping you create policies to maximize cost effectiveness and QoS over time.

Indeed, some advanced simulators are stand-alone...

...Software's Arena being a sterling example. Here, the product's purpose is to let call center planners model an entire center - routing, staffing and all and subject the simulation to an eventstream. Managers can tweak it until all their 'what if?' questions are answered. An additional module (OptQuest) turns its Arena simulator into a conventional workforce manager, generating schedules that meet service-level parameters.

WHAT ALSO MATTERS

Uses beyond theory and the computational core, workforce management systems distinguish themselves from one another in several different ways.

All vendors offer monitoring...

...service level to what the ACD has calculated, etc. And they let you compare proposed agent schedules to what agents are actually doing (real-time adherence). This data helps managers make intraday staffing decisions that keep the center within its service targets.

Some products offer...

...examine real-world data and troubleshoot schedules when QoS falls below objectives. Blue Pumpkin's Workforce Staffing module, for example, will tell managers that the least expensive way to meet service objectives is to hire two Spanish-speaking agents and one English-only agent, all three of whom are certified to offer tech support on products A, B, and C.

The next great frontier for workforce management is web-based features for letting workers contribute to the scheduling process. The web ...

...other equivalently skilled workers, or otherwise assert a sense of control - all without clogging a supervisor's desk with paperwork. Examples: ESI's web-based e-SchedulerR and Pipkins' add-on module for its Maxima Advantage WFM system, called WAVE (Web Agent Viewing and

Empowerment) let employees swap shift time, online. The systems make changes to their databases automatically, while providing appropriate security constraints to prevent schedule foul-ups as might happen if two agents with unequal skills were to swap spots without other adjustments being made.

Also on the horizon: the use of parameters that let a supervisor drive scheduling solutions in humane ways. The Irene Enterprise WFM system, from ISC, lets you include policy constraints, such as limits on agent utilization during a particular timeframe, how breaks must be spaced, etc. This avoids producing schedules that satisfy cost and QoS requirements, but cause agents to burn out. This is true "agent optimization."

Here's a quick rundown on some top workforce management products.

BLUE PUMPKIN

While simulation-based staffing models may take longer to run than analytic ones, they have the advantage of producing staffing numbers that reflect the way your call center really operates. Blue Pumpkin's (Sunnyvale, CA - 408-8305400, www.bluepumpkin.com) Director Enterprise simulates agent schedules to find the combination that comes closest to meeting service level objectives. If Director Enterprise tells you that you're not meeting service goals due to agent resource limitations, its Workforce Staffing module suggests who you'll need to hire, with a breakdown by skills, to make up for the agent shortfall. If you want to see how the call center is performing, use Director Enterprise's Pulse. It displays real-time reports comparing forecasted statistics...

...forecasts come closer to matching centers' micro-trends. And its web-based eSchedulerR lets employees swap shift time without requiring a trip to the supervisor's desk.

ISC

Irene Enterprise, from ISC (New York, NY - 212-477-8800, www.isc.com), lets you force solutions that not only meet service and cost objectives, but protect agents from burn-out. Their "agent optimization" approach reasons that theoretically optimal scheduling solutions may require optimal agent performance at all times an unrealistic goal - and that agents whose performance is characteristically good may be overburdened by a scheduler that views them as...
...its talented group of mathematicians has created an accurate analytic model of a multi-skill call center. Also, it uses an adaptive learning algorithm that takes into account "team performance" to obtain...

...hosted version of the same software and is available on a fee-for-service basis.

IBX

Call centers with complex ACD scripts may not be suitable for formula-based staffing software. IEX's (Richardson, TX - 800-433-7692, www.iex.com) TotalView 2's embedded simulator integrates with IEX's multi-skill scheduler to create schedules that will meet service level goals. More than...

...module that can reforecast service levels during the workday and make recommendations to keep your call center within, spec.

PIPKINS

Pipkin's (St. ...loads based on ACD statistics collected for similar past campaigns. Maxima's "correlated forecasting" lets manager's come up with better staffing level for non-average days. Of course, Maxima includes all the reports and graphs needed to show how the call center's actual performance compares with the predicted service levels. Another reality-check is provided by its real-time adherence reports, which compares planned agent schedules with the current state of agent deployment. Besides showing a current snapshot, as other vendors do, Maxima's adherence reports compares against previous periods during the day. Maxima's add-on module, WAVE (Web Agent Viewing and Empowerment) lets agents view their schedules from a web browser and request changes on-line without clogging a supervisor's desk with paperwork.

ROCKWELL

When you don't have the current staff to meet service levels, Blue Pumpkin's Workforce Staffing tells you the skills of the agents you'll need to hire.

ISC's Irene adds an agent occupancy limit - the percentage of time that an agent is busy - to its inputs.

Rockwell Software's (Sewickley, PA 412-741-3727, www.arenasimulation...

...change to ACD routing script. Besides the standard dialog boxes for entering call volumes and agent handling times, the simulator also lets call center managers use a graphical drag-and-drop interface to flowchart ACD programming rules. The simulator also accounts for non-standard service handling distributions that may better represent the way agents perform transactions. With rules programmed and actual agent schedules entered, Arena exactly models the call center environment you're trying to analyze. With the separate OptQuest optimizer added on, Arena becomes a traditional workforce management solution that helps you decide how to reach service and cost goals.

RIGHTFORCE

While some workforce management settles on a single approach to

staffing, RightForce (Fort Lauderdale, FL 877-336-7231...

...service-level objectives, but in which timeslots are filled in with skill types, not actual agent names, while the operational schedule shows how the schedule can be covered from the center's actual

agent

pool. This reality-based schedule will appeal to cost-conscious managers since it indicates when the center is overstaffed for the week being planned, say, because...

...During the working day, when servicelevel goals are not met, real-time adherence reports give call center operations a current snapshot of agent activity, and the information they need to put the call center back on track.

GATHERING STATS

For workforce management software to analyze a multi-site call center, it needs to get hold of all the ACD statistics. If you consider that a "virtual" call center may have ACDs from different vendors spread over separate time zones, the problem of summarizing...

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Print Media ID: 42689

Abstract:

Scheduling call center agents' work hours and vacation days can be time-consuming. Using workforce management (WFM) software to handle scheduling automatically can make keeping manual records of agents' work hours and activities feel like lugging a stone monolith by comparison. It is estimated...

...their customer bases. Starting in 2001, vendors experienced a very

significant spike in interest among call centers due to the economic downturn. In 2002, it leveled off a bit. Now it looks...

Text:

Time waits for no one, and that includes agents

at your call center. To help ensure that they use their time efficiently, you can turn to workforce management software.

If you've ever visited Stonehenge in England or seen pictures of it...

...that you use a calendar from a hand-held PC or desktop PC at your call center to keep a record of when agents arrive, when they're absent and what work they're doing.

But scheduling agents' work hours and vacation days can be time-consuming. Using workforce management (WFM) software to handle scheduling automatically can make keeping manual records of agents' work hours and activities feel like lugging a stone monolith by comparison.

Paul Stockford, chief...

...their customer bases.

"Starting in 2001, we experienced a very significant spike in interest [among call centers] due to the [economic] downturn," says David Van Everen, product line manager with Genesys (Daly City, CA). "In 2002, for us, it leveled off a bit. Now..."

...outbound campaigns, most new apps also collect data from predictive dialers to determine how many agents you need.

Most of the new apps also let you communicate with agents and employees through the Internet or your call center's intranet. Agents and supervisors can view schedules through a Web browser or be alerted to sudden schedule changes. That's an especially useful feature for multi-site call centers and remote agents. And agents can submit their requested work hours or trade shifts with each other on-line, pending your approval.

WORKING WITH WFM SOFTWARE

Workforce management software can't do all the thinking for you. You first must decide on...

...allow you to consistently meet staffing needs, while avoiding the trap of assigning too many agents.

The first criteria, says Larry Skowronek, senior manager of product management with Aspect Communications (San Jose, CA), is (customer] service levels. (Call centers typically define this as the percentage of calls that agents must answer within a given timeframe.) The second criteria is agent labor costs.

"If you're meeting service levels but agents are only occupied 25% of the time, you're wasting money," says Skowronek. "If they...

...I would probably like to see two years," says Bob Brittan, senior product and marketing manager, Symon Communications (Sugar Land, TX).

Brittan explains that creating forecasts based on an entire year...

...upward trend in previous call volumes, the hotel's forecasts indicated the need for more agents. Goes discovered that the company decided to sell four of its 30 hotels. That decision...

...reduced call volumes, and thus also the accuracy of the forecast.

Most WFM software offers agents freedom to select their preferred work hours. Although some call center managers are wary of this practice, it makes good business sense.

"Turnover is always expensive, so...

...time or missing service level targets."

Reducing turnover isn't the only incentive for enabling agents to request scheduling preferences.

"There's a correlation between agent morale and turnover, but there's also a correlation between morale and effectiveness," says Tiffany Riley, vice president of marketing, Blue Pumpkin (Sunnyvale, CA). "The happier that agents are, the more likely they're going to be effective on the phone with customers..."

...priced versions of their products that can simply help you set basic schedules for when agents should handle phone calls.

Conversely, if you require more sophisticated WFM software, you can choose from products that enable you to set agents' schedules for handling messages from all media, and that can help you assign agents to work hours based on their skills. Here's a look at some of the...

...1 provides you with two scheduling options. The upgrade lets you schedule based entirely on agents' preferences or to meet forecasted call volumes.

The app includes an Intra-Day Performance chart...

...your forecasts, schedules and service goals. The Intra-Day Time Line chart lets you view agents' daily schedules, including activities

like answering calls or training, and their adherence to schedules.

eWorkforce...

...6.1 includes two optional modules: eSchedule Planner and Aspect Notification Server. The first lets agents request changes to schedules by e-- mail and receive an automatic approval or refusal based on predefined rules (e.g., one limiting to ten the number of agents who can be on vacation simultaneously). If a requested change is approved, Aspect Notification Server automatically alerts agents, supervisors and others of the change by e-mail.

In February 2003, Aspect introduced Scheduled Callback...

...that allows customers to schedule a time and date to receive a call from an agent by entering options from a touchtone menu. Scheduled Callback is available as a standalone product. But you can use it with eWorkforce Management 6.1 to forecast periods of agent availability and schedule customers' call backs during those times. eWorkforce Management 6.1's Real-Time Adherence and Agent Productivity modules help you to ensure that agents follow schedules and to evaluate their performance, respectively. Real-Time Adherence lets you know if agents are early or late to work and how long they spend on scheduled activities such as lunch breaks, training sessions and helping customers. Agent Productivity triggers alerts so that agents know when they've spent more time than necessary on an activity.

Some WFM vendors offer different versions of their software to appeal to call centers of varying sizes and budgets. Example: Blue Pumpkin, which offers two versions of Blue Pumpkin Director, the flagship product of the Workforce Optimization suite.

The Essential edition of Director is for call centers that need basic forecasting and scheduling functionality and allows you to create and manage schedules following basic work rules for single or multi-skilled agents. Essential also lets you assign agents to work specific shifts based on their skills.

The more advanced Enterprise edition includes all...

...forecast other types of media, including e-mail and text chat volumes, and to schedule agents to handle each type of contact. Enterprise also lets you generate forecasts and schedules for multi-site call centers, and create hypothetical scenarios to see how altering agents' schedules affects service levels. Using Director's WebEnabled Self-Service feature, agents can negotiate their schedules online. They can also save a record of schedule change requests ...

...then view the record from a Web page.

Blue Pumpkin introduced three new apps for Workforce Optimization:

Activity Manager, Advisor, and Planner.

Activity Manager integrates with multimedia apps so that agents can respond to e-mail, chat and voice-over-IP calls, in addition to phone calls, from one desktop interface. Agents can send messages to you through a Web browser to request changes to their schedules and to indicate if they're having difficulties.

Activity Manager lets you view from one screen the agents view are working and the tasks they're handling; their scheduled activities for the day or week; and how much you're paying them. You can integrate Activity Manager with your payroll software to automatically calculate agents' pay for the hours they work.

Advisor compares agents' real-- time performance statistics to service goals and to their co-workers' performance results. You can use Activity Manager and Advisor together to trigger historical and real-time alerts when agents fall short of a goal (e.g., average handle time for a text chat session). The Benchmark feature lets you

compare performance statistics among agents, teams of agents or sites at multi-site call centers.

To help you understand what effects scheduling changes might have on your call center's service levels and budget, Planner lets you create a series of sample schedules so you can determine the most efficient and least costly staffing strategy for your call center. You can e-mail these schedules to call center managers and executives within your organization to invite their feedback on potential schedule changes. Planner also...

...long-term forecasts monthly, quarterly and annual volumes for phone calls and multimedia contacts.

An agent's schedule created with Genesys' Workforce Management.

When CenterForce Technologies (Bethesda, MD) acquired WFM software vendor RightForce in November 2002, the...
...forecasts staffing requirements for outbound campaigns.

With RightForce's Outbound Staff Planning, you can schedule

agents
for each campaign based on their skill sets, so that, for example, agents with sales experience handle sales calls. And you can set service goals for campaigns based on historical data, like the average duration of completed calls and your call center's previously successful live contact rates.

RightForce is Web-based software that includes a database...call volumes. The app can generate forecasts for up to five years. You can enter agents' absentee dates to automatically revise schedules to find reps who can serve as replacements. And you can monitor and compare the number of agents working to the day's staffing requirements.

As to optional modules, MessageNet enables you to send popup messages to agents and specify the duration of time the message should remain on their screens. Agent Empowerment lets agents submit scheduling preferences to you on-line.

Event Monitoring allows you to monitor events like e-mail and text chat, in addition to phone calls. Vacation Administration allows agents to request vacation days; and it lets you set rules to automatically approve or decline their requests. You can also integrate Vacation Administration with payroll...

...software that routes inbound and outbound calls, e-mail and text chat, also includes a Workforce Management module that works as a standalone product. WFM comes with the Genesys Framework, apps which collect data from phone switches, e-mail servers and predictive dialers.

Genesys Framework provides Workforce Management with a database for storing agent profiles, including their skills. Framework also includes T-Server to collect data from sources like...

...Server collects into real-time and historical statistics for creating forecasts and schedules.

In addition, Workforce Management lets you use the data to create What-If scenarios. For example, if you...

...to answer 80% of calls in 20 seconds), the software will automatically determine how many agents you need. You can also create scenarios to estimate future staffing needs for up to two years.

Workforce Management additionally provides skills-based scheduling options. You can schedule agents to work given shifts based on their skills and proficiencies. So if you employ agents who speak Spanish, you can rate their fluency on a scale of one to ten...

...receive the most calls from Spanish-speaking customers at a given hour, you might schedule agents with a minimum Spanish proficiency rating of five to work during that time. Or you can assign agents to shifts based on their skills alone, regardless of proficiency.

After you're finished creating schedules, Workforce Management enables you to view them on-line. You can edit agents' schedules and monitor their realtime schedule adherence and performance statistics through a Web browser. Agents can also view their schedules through a browser. And they can complete on-line forms to enter their schedule preferences or to request vacations.

To help you keep agents abreast of new or revised schedules, GMT (Norcross, GA) upgraded GMT Planet - Jupiter 8.2. You prepare a list of agents' e-mail addresses for scheduling alerts through a wizard. Alternatively, agents can receive e-mails containing a link to a Web page where they can view the changes.

As with Jupiter 8.1, the current version enables you to schedule when agents answer e-mail and make outbound calls. You can set service goals requiring agents to respond to each e-mail message within one to 72 hours. And you can track agents' progress with a chart divided into three sections. The top section displays daily e-- mail volumes as compared to the number of messages that agents answer. The center section details the backlog of unanswered e-mails remaining at the end of each day. The bottom chart displays the hours that you've scheduled agents to handle e-mail.

When you generate schedules for outbound campaigns, you can follow the...

...for e-- mail scheduling. The top of the chart displays the number of outbound calls agents make to the desired number of calls. The remaining two sections are reserved for the number of calls agents must make to meet service goals, and the shifts during which agents should make calls.

GMT also lets you measure agents' real-time schedule adherence. The software includes a One-- Click Sick feature that lets you automatically find substitute agents who have the same skills as agents who call in sick. If you're on a tight budget you can opt for...

...s latest features but that can create forecasts and schedules based on inbound call volumes.

IEX (Richardson, TX), one of the first WFM vendors to offer a Web browser-based component, upgraded the Web Station module of its TotalView Workforce Management suite. WebStation enables you and agents to view their schedules and performance statistics on-line.

The latest version of WebStation allows agents to bid on-line for the shifts they want. Agents view available schedules for themselves and their co-workers. They complete a Web form to enter the shifts they want in order of preference. The module then assigns agents to shifts based on pre-set criteria. You can, for example, prioritize which agents receive their scheduling preferences based on their seniority and their performance statistics. Afterward, agents can view their schedules on-line.

New to WebStation is Activity Tracker. The feature lets you keep tabs on whether agents are logged in to WebStation to receive schedule change notifications and view their performance statistics. Activity Tracker also lets you confirm that agents viewed and acknowledged schedule changes. TotalView automatically sends a pop-up alert when you

change their schedules. You can also view when agents bid on a given shift or trade shifts with co-workers.

IEX also upgraded TotalView Workforce Management by adding a Change Management feature, which lets you make changes to agents' schedules in real time. The module displays data from a chart, including call volumes and the number of calls answered or abandoned. Based on that data, you can assign more agents to answer calls during peak call volume hours or assign agents to training or other duties at less busy times.

When you have both call center managers and agents changing schedules, it's not easy keeping track of who makes what changes. The Audit Trail module keeps records of all changes. When you view agents' schedules, Audit Trail displays a pop-up screen that contains every version of each schedule...

...see the original schedule alongside the later version with revisions made by yourself and by agents when they call in sick, go on vacation or successfully bid on different shifts.

Key features of TotalView Workforce Management include forecasting, scheduling and hypothetical staffing scenarios. The last helps you estimate how much an event might impact call volumes and, therefore, how many agents you'll need. The WebStation and Audit Trail modules are optional. A third optional module, RealTime Adherence Monitoring, checks that agents stay on schedule.

The most recent upgrade to ISC's Irene automatically sets schedules for agents at multiple sites based on the number of agents at each site and the business hours at their respective time zones. For example, if your company has call centers in Los Angeles and New York, Irene can schedule every agent in the Los Angeles center to answer calls immediately after the New York center does.

Irene's In-Charge chart provides a view of call center activity, including call volumes and the number of agents answering calls at a given time. In-Charge divides each day into 15-minute intervals, lists the names of agents who work during each shift and compares their current speed of answer and service levels against your service goals. Irene also enables agents to view their schedules and those of coworkers. Agents can request to trade shifts with each other, with your approval, by completing an on-line form.

ISC offers hosted...

...To best use WFM software, you need to collect the most relevant information from your call center's historical data. Monet from Left Bank Solutions (Los Angeles, CA) includes the Quick Data...

...might include information about your center's daily and hourly call volumes and the time agents require to perform post-call wrap-up

tasks.

The most recent upgrade to Monet includes a real-time monitoring and reporting feature to help you track agents' performance. The app also lets you generate forecasts and schedules for handling e-mails and other noncall activities. You can view unscheduled agents within a team of agents and assign them to other teams. Or you can assign agents as primary and secondary members of specific teams. Monet enables you to work with an unlimited number of individual agents and agent teams.

You can integrate Monet with your phone switch. The software collects historical data from your PBX every 15, 30 or 60 minutes. And you can print and e-mail agents' schedules and reports that you create, in addition to exporting your reports to Adobe Acrobat and Microsoft Excel

formats.

Monet lets you establish an employee database to save information about agents like their skill sets, shift preferences and the hours that they're available to work...

...meet real-time fluctuations in call volumes. You can also create an unlimited number of agent groups with their own service level objectives.

The paradox of WFM software is that although...

...you select options for forecasts and schedules like the dates that they cover and the agents or groups of agents for whom the schedules or forecasts are intended. You can also set rules to determine who can view completed forecasts and schedules. And you can complete multiple tasks...

...only do that, but also e-mail and print copies of those schedules for the supervisor of each team.

The Vantage Point upgrade also lets you update forecasts and current schedules to accommodate sudden staffing changes. If you're faced with a emergency, like having six

agents call in sick on the same day, the software can recalculate the day's staffing needs and modify agents' breaks, lunches and work assignments to compensate for the labor gap. Agents receive their new schedules by e-mail or a through a screen pop notice that...

...licensed formats, also lets you calculate staffing requirements based on forecasted call volumes, handling times, agents' skills and service levels that you set, such as average answer times and acceptable percentages for abandoned and busy calls. The software also features

modules that let you check agents' schedule adherence and generate reports comparing forecasts to actual call volumes. The Agent Power WFM suite from PRM comprises five modules. Planning & Scheduling, the core module, collects call...

...lets you view hypothetical scenarios to determine how changing one variable, like the number of agents working at your call center, affects your center's performance.

Two Agent Power modules, How Goes It? and Real-Time Agent Status, collect data from your phone switch at varying intervals. How Goes It? collects the...

...at half-hour intervals, enabling you to save it and to view graphs measuring your call center's performance metrics. Real-Time Agent Status monitors current phone switch data so that you know which agents are logged in, taking calls, holding calls, or completing post-call wrap-up work.

The Agent Performance module lets you benchmark agents against performance goals and each other, based on criteria (e.g., the number of calls answered per hour or the percentage of time that agents spend helping customers on or off the phone). If you use readerboards at your call center, Info Screen lets you display phone switch statistics from them. Although Symon Communications is well...

...Contact Center Community suite. The Community Skills module collects data from your phone switch, including agents' skill sets and call volumes. So if you've programmed your switch to route calls to separate teams of agents who speak English and Spanish, Community Skills can generate forecasts and schedules for both teams based on the information from your switch.

You can check agents' adherence to their schedules with Community Watch. The module lets you set thresholds for permissible lapses in how closely agents follow their schedules, and for triggering an alert message on your PC after agents exceed those thresholds. If, for example, an agent is scheduled to answer calls at 1 pm after a lunch break, you can set a threshold to give that agent an extra five minutes to return from lunch. Community Watch also enables call center managers working with different teams of agents or at different sites to view each other's agent schedules.

Agents enter vacation and sick requests for your approval through Community Calendar, an on-line bulletin board. Agents can also request changes to their work hours through Community Calendar and browse co-workers' requests for schedule changes to trade shifts with them. The module also lets agents find out if you approve or deny their scheduling requests or if you've yet...

...feature to lhollman@cmp.com.

MANAGEMENT SOFTWARE

Simplified Seating

Throughout this article, we discuss how workforce management software can help you to organize agents' time. But Callcenter Performance Management (Marietta, GA) takes a unique approach by enabling you to organize the seating plan at your call center for agents and their supervisors.

Callcenter Floor Manager lets you save individual profiles about supervisors and set schedules for them. The software then assigns supervisors to workstations based on their skills, the hours they're scheduled to work or other factors.

Floor Manager can work especially well if you divide agents into teams handling specific calls (say, one team that handles inbound customer support and another for outbound sales calls). You can use Floor Manager to place supervisors who have customer support skills with inbound agents, and supervisors who have sales skills with outbound agents. You can also create alternative seating plans if agents and supervisors at your center share desks.

Callcenter Performance Management

also offers Callcenter Bid Manager, a module that works with software from vendors like Aspect, Blue Pumpkin and IEX. After you create schedules using those vendors' WFM apps, agents can bid for the hours they want to work using Bid Manager. Agents can enter the times they want to work in order of preference; and you can set rules to determine what times they get. Bid Manager then automatically enters agents' approved bids into their schedules.

But doesn't most WFM software already enable agents to bid on shifts? Dick Lexmond, president, Callcenter Performance Management, says yes, but explains that once agents bid on shifts using software from the leading WFM vendors, their schedules are completely re-aligned.

"They don't allow agents to keep the hours they already have," says Lexmond. "With Bid Manager, if I'm an agent who works Wednesday to Sunday afternoons and don't get my preferred hours, I can...

...current hours and still have an opportunity to bid for a better schedule."

Managing Your Workforce Management Options

With so many choices available, finding the right WFM software for your call center is no easy task. To learn more about some of your options, contact the companies...

...888-GENESYS

www.genesyslabs.com

Global Management Technologies (GMT)

770-416-6000 www.gmtcorp.com

IEX

800-433-7692/972-301-1300

www.iex.com

ISC

212-477-8800

www.isc.com

Left Bank Solutions

310-207-6800

www...

Descriptors:

...Call centers; ...

...Workforce planning

Classification Codes:

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Company Names:

IEX Corp (NAICS:511210)

Geographic Names: United States; US

Descriptors: Software industry; Workforce planning; Call centers; Product introduction; Scheduling

Classification Codes: 9190 (CN=United States); 6100 (CN=Human resource planning); 7500 (CN=Product planning & development); 8302 (CN=Software and computer services)

Print Media ID: 42689

Workforce optimization takes center stage

Abstract:

A lot is happening in the realm of workforce optimization, whose purview includes scheduling, quality assurance, training, and performance analytics. So it is hardly...

...Dallas fall within this domain. One of these is a monitoring system. The other is IEX's TotalView workforce management software, the latest version of a module that lets agents trade and bid for schedules. A number of products let agents view schedules from within Web browsers, but few offer the variety of ways in which TotalView WebStation lets agents bid for and trade schedules online. With bidding, WebStation presents schedules that are available to agents in a group. A ranking is specified for each agent. The higher the ranking, the more likely the agent is to receive the schedule he or she bid for.

Text:

Workforce optimization tools grabbed the limelight among the new products we saw at the first call center event of 2003.

A lot is happening in the realm of workforce optimization, whose purview includes scheduling, quality assurance, training and performance analytics. So it's hardly...

...re planning to test-drive. The other, the latest version of a module that lets

agents trade and bid for schedules, rounds out a well-established workforce management tool.

Workforce optimization bears close watching. We'll examine this growing area in a special supplement due...

...The supplement will be available on our Web site around the time of our spring Call Center Demo and Conference next month in Orlando (www.callcenterdemo.com). We invite you to join us in discovering more exciting trends as the year progresses.

IEX'S TOTALVIEW WEBSTATION 3.5

We've kept close tabs on IEX's (Richardson, TX) TotalView workforce management software.

What really got our attention in Dallas is the latest version of TotalView WebStation that comes with TotalView. A number of products let agents view schedules from within Web browsers, but few offer the variety of ways in which TotalView WebStation lets agents bid for

and trade schedules on-line.

With bidding, WebStation presents schedules that are available to agents in a group. You specify the ranking for each agent. The higher the ranking, the more likely the agent is to receive the schedule he or she bid for.

You also provide agents a certain timeframe in which to submit bids. WebStation allows agents to change bids within the timeframe you indicate. Thereafter, the software automatically assigns schedules, and notifies agents when it has done so.

We're most impressed with WebStation's options for trading schedules. Agents can request twoway trades, where they switch schedules. With one-way trades, agents offer schedules to others. Agents also indicate which dates and times they're interested in.

As a supervisor, you can indicate whether agents' skills, as you've defined them, have to match for a trade request to be viable. You can also establish which agents are permitted to trade. And you can set rules to make sure agents don't exceed a certain number of hours or ask for trades after payroll has gone through.

WebStation automatically informs agents if it accepted their trade requests. If you prefer, you can disable this feature and be the final arbiter of trades.

Although WebStation lets agents switch schedules, the software doesn't enable them to request vacation time or other changes to existing schedules through Web browsers. That capability is for another release.

IEX has learned from clients that agents' scheduling preferences rarely change. So agents do not indicate preferences through WebStation.

WebStation continues to include StatsViewer, which lets agents see statistics (like average handle time) that usually come from your phone switch. StatsViewer displays comparisons between an agent's statistics and those of others within the same group or center.

Lastly, WebStation employs...

...plug-ins to load will appreciate how much smoother Web browsers function without them.

For call centers that have already invested in TotalView 3.5, the additional cost of TotalView WebStation ranges between \$25 and \$55 per agent 800-433-7692/972-- 301-1300, www.iex.com

ROBOTEL'S

Version 3.5 of IEX's TotalView WebStation lets agents trade

schedules from a Web browser.

SMARTCONTACT CENTER

The call center market boasts a wide array of vendors offering combo coaching, recording and monitoring of voice...

...to fame on a new product dubbed SmartContact Center. The solution, which debuted at our Call Center Demo and Conference in Dallas, intrigued us enough that we plan to review it in...

...Drive.

Powering Smart CC is a sleek, CB radio-like unit that sits under each agent desktop. This telephone user interface connects to the agent's handset and PC audio connection, capturing both voice and screen interactions.

A second box...

...also connects to the PC, handling video, keyboard and mouse communications. Data passes from the agent desktop to a Smart CC switch that links to the supervisor's workstation. The data travels through dedicated cabling, thereby off-loading high-bandwidth traffic from...

...also operates independently of the PBX.

So how does the product work in action? When agents need help assisting a customer, they press a call button on the telephony interface box. At the supervisor's PC, which visually models all agent positions, a flashing raised-hand symbol appears; and a tone alerts the supervisor to the call. The supervisor can monitor the call by clicking his mouse on the flashing agent station icon.

When the going gets tough, agents can hit the call button (furthest right) to alert a supervisor.

Supervisors then have three options. They can (1) use the coach button to "whisper" to the agent without the caller hearing; (2) hit the intervene button to talk to both the agent and customer; and/or (3) select the keyboard/mouse button to take control of the agent's PC.

Supervisors need not wait for agents to hit the panic button before swinging into action. They can sequentially scan all agent workstations for a fixed time interval (30 seconds or more). The supervisor can then elect to hear and watch an agent's voice and screen interactions. Using a 30-second interval, the supervisor can monitor 15 agents over 7.5 minutes.

Robotel also bills Smart CC as a training tool. To that...

...of the trainees.

Robotel offers with Smart CC three additional options. Light Audio Logging lets supervisors record, archive and bookmark conversations on the fly. A Multiple Supervisor's Option equips agents with multiple call buttons to connect to different supervisors and remote live monitoring lets a supervisor and a remote caller listen to agent/customer communications.

In total, Smart CC is a powerful quality assurance tool. To judge by...
...British Gas), we're not alone in that view.

Smart CC supports up to 100 agents. Pricing, including installation and training, ranges from \$1,200 to \$,400 per station. 866-- 762...

Company Names:

IEX Corp

Geographic Names:

Descriptors:

...Workforce planning...

...Call centers;

Classification Codes:

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The time machine

Fleischer, Joe

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For a call center, the practice of workforce management means finding time for agents so that they are collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls. Once you establish your practices, you are ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like. But workforce management entails more than plotting out a set of timelines on a computer. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules.

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We describe the latest tools and techniques to enable your center to gain maximum efficiency when scheduling the best times for agents to communicate with customers.

It was at the 2002 Winter Olympics. It's long been at some of the largest call centers in the world. And last fall, it became a part of the 69-- agent call center for the gas company that serves the state of Oklahoma.

Is it in your center?

We're talking about the practice of workforce management: finding time for agents so that they're collectively as productive as they can be. Developing good workforce management practices is necessary in advance of choosing software to forecast the size of your staff and the times agents handle calls.

Once you establish your practices, you're ready to use the call center's version of the time machine: software that enables you to see what the future of agents' schedules looks like. From a mathematical standpoint, scheduling software strives to give your center the most coverage with the fewest agents. Scheduling tools typically work closely with forecasting software, which gathers statistics about service levels and call volumes from automatic call distributors (ACDs). Forecasts let you look back in time so that you can use past call patterns to predict staffing needs within the next week, month or year.

Most vendors tightly integrate their scheduling tools with forecasting software. Many can import and export schedules to and from spreadsheets. Some complement workforce management with call routing or reporting software. One vendor, Aspect (San Jose, CA), plans to allow agents' schedules to adapt automatically to circumstances like sudden swings in the

number of calls or staff.

Call centers of all sizes share the same motivation for using software to build schedules; it's faster than doing it by hand.

But workforce management entails more than plotting out a set of timeliness on a computer. Since you're developing schedules for people, factors besides efficiency come into play.

One factor to consider when building schedules, for example, is agents' preferences. That applies during good times, when labor markets are saturated, and during difficult times, when corporate budget cuts restrict the number of agents you can hire. As more centers seek to retain agents by giving them schedules they prefer, more scheduling software products now enable centers to specify agents' preferences before they prepare schedules. In workforce management, as with other disciplines, good practices improve on good software.

A STRATEGIC PERSPECTIVE

Organizations that serve customers must have reliable methods of estimating how many employees they need and when they need them.

The Salt Lake Organizing Committee, which oversaw the 2002 Winter Olympics, is no exception. It used software from Global Management Technologies (GMT; Norcross, GA) to schedule shifts for more than 25,000 people, including volunteers who collected tickets from spectators or manned first-aid booths for athletes.

Call centers, too, have to calculate staffing requirements and figure out the most feasible times for certain agents to answer certain types of calls. In centers with hundreds of seats, forecasting and scheduling are Olympian tasks that require full-time people.

"We see one scheduler to every 100 agents," says Brian Spraez, director of marketing for IEX (Richardson, TX), referring to clients who use IEX's TotalView workforce management software.

At call centers with multiple sites, the trend is to establish a group of schedulers for the company at one location who collaborate with supervisors at each site. This arrangement is currently in the works at a client of consulting firm Callcenter Performance Management (CPM; Marietta, GA).

Tracy Teamer, CPM's senior vice president of consulting, says that the client, a cable company, has eight sites that formerly operated as separate units. For example, four of the centers created schedules with spreadsheets; the remainder used workforce management software from Aspect. Each site also employed its own scheduler and used different methods to assign agents to shifts.

Agents were so dissatisfied with the lack of consistency, Teamer

recalls, that they drew up petitions to protest what they thought was unfair scheduling. That was last year. This year, although the sites still have their own schedulers, they report to one person who is responsible for establishing similar scheduling processes among all locations.

"The goal is to have a planning organization," says Teamer.

Tom Aiello, director of marketing for RightForce (Ft. Lauderdale, FL), says that one client, Abbott Laboratories, had initially planned to employ four dedicated schedulers at four call centers. Instead, the pharmaceutical company opted to hire a head scheduler at its Dallas call center and a backup person at another center in Chicago.

David Van Everen observes similar developments with clients of Genesys (San Francisco, CA), where he's a product manager. "The trend with most recent multi-site customers is to consolidate; typically there are one or two central planners," he says.

What do schedulers look at? They often emphasize agents' adherence to schedules, and with good reason. A schedule is only as effective as the agents who follow it. Gilles Flourde, vice president of operations with OdySoft (Longueuil, Quebec, Canada), says that one client thought its center was overstaffed until it discovered that 2% of the agents followed their schedules.

That said, agents have limited control over adherence. If your initial forecasts are inaccurate, or if you change agents' shifts without giving them adequate notice, then adherence alone is not a meaningful measure of performance.

How can you do a good job of scheduling? One necessary trait is creativity. Many workforce management tools let centers set up and compare hypothetical plans so they can identify schedules that are cost-- effective for their companies and reasonable for agents.

Tiffany Boehmer, senior director of product marketing for Blue Pumpkin (Sunnyvale, CA), describes how one client, a software company, found a way

to answer more calls without hiring more agents or crosstraining those on staff. The software firm's call center, which initially scheduled agents to spend half their time handling calls, extended all agents' shifts by 15 minutes a day. Result: The software company reduced costs by \$1.5 million.

Another skill for schedulers: Avoid getting caught up in the details. Art Goes, president of Professional Resource Management (PRM; Palatine, IL), says a scheduler at one client used to devote two hours a day to planning agents' shifts and six hours a day negotiating with agents. The problem, he says, was that the scheduler spent too much time trying to

accommodate each agent.

CPM's Teamer believes that automated scheduling can help "take out subjectivity and the perception that human beings impacted schedule choices."

One exception is when agents want to swap shifts. Teamer acknowledges that trades involving shifts on weekends or evenings can be difficult to fulfill, which is why call centers often ask new hires to work these schedules.

Although scheduling tools allow centers to automate trades of shifts, Bob Webb, vice president of sales with Pipkins (St. Louis, MO), doesn't agree with this approach. "Our theory is that ultimately, final approval has to be from supervisors," he says.

An ongoing issue in workforce management is the lack of high-level planning that includes a company's human resources and fiscal departments, not just IT and call center managers. "The budget is not necessarily married to operations," says Pipkins' chief financial officer Tim Venturella.

Accurate forecasts and efficient schedules determine how many seats of call center software you purchase, whether the software is for monitoring agents' calls or enabling them to look up customers' records.

Yet CPM's Teamer finds that call centers tend to treat workforce management software as an expensive employee database. "Most people don't use it as a budgeting tool," she says.

WHY SCHEDULING SOFTWARE?

The conventional wisdom you're likely to hear is that the majority of call centers don't necessarily depend on specialized software to schedule agents. One reason is that the software, if it starts at tens of thousands of dollars, is prohibitively expensive for single-site call centers with fewer than 100 seats.

If you're concerned about costs, hosted scheduling software is a viable option for the short term, although it's not widely available. Several vendors offer hosted workforce management tools, as we describe in our product updates below.

Even with the presence of less expensive software, it's hard to shake a general perception that workforce management is only for centers with lots of agents.

Smaller centers typically don't have the resources to hire dedicated staff to administer schedules, let alone plan for how much staff they need for the next year. Supervisors in these centers are often the people

who, on top of other responsibilities, devote the equivalent of a full-time job to assigning agents to shifts. Unless it's budget season, forecasting is not the top priority, nor is studying the effects of various hypothetical schedules.

Lack of planning plagues large and small centers alike. "If they're not doing a good job of forecasting, they're constantly going to be reacting to changes," says IEX's Spraeztz.

Compared to schedules for agents who answer calls, schedules that involve outbound calls are less subject to chance. "It's a little more predictable because you're controlling the patterns," says David Marcus, senior vice president of special projects with GMT.

Scheduling tools mainly address the unpredictability of incoming operations, but the tools are used at a small number of centers that handle both inbound and outbound calls. For example, Nielsen Media Research, the source of TV's Nielsen ratings, uses GMT's software to schedule outbound calls at its 2,000-seat center. (CenterForce Technologies, a Bethesda, MD-based developer of ACD reporting tools, also offers software for scheduling outbound calls.)

Beyond forecasts and schedules, workforce management software addresses additional concerns of call centers.

Scheduling dovetails with human resources, and many software products can share information with payroll systems. Hansen's (Dallas, TX) ResourcePro software, for instance, automatically updates agents' schedules and applies the changes to payroll records if agents agree to work overtime.

To ensure that companies develop the discipline of forecasting and scheduling before they implement software, a number of vendors offer training and other professional services through partnerships with The WorkForce Management Group, a consultancy headquartered in Delray Beach, FL.

PRODUCT UPDATES

Before we summarize what's new with products from established vendors, we should point out that most workforce management tools share certain features in common, depending on the size of the centers that use them.

Developers of forecasting and scheduling tools that are in place at large centers - Aspect, Blue Pumpkin, Genesys, IEX, OdySoft and Pipkins - allow agents to view schedules within Web browsers. Most of these products let agents outline the schedules they prefer. In the past few years, more products have added the ability to respond automatically to agents' requests to swap shifts and to get time off. These tools often include separate modules to help you verify that agents are following their schedules.

One feature that's widely available with many products is the ability to

schedule on-line communication and calls. But this feature is not catching on because the concept of a universal queue for calls and on-line communication remains an idea, not a reality, in most centers.

The vendors we spoke with readily acknowledge that their clients' call centers block out time for agents to answer e-mail the same way they block out time for training or breaks. That is, these centers designate certain agents to answer e-mail separately from calls, rather than creating schedules where agents respond to e-mail and calls together.

Nearly all vendors we interviewed, large or small, incorporate agents' preferences within schedules, given increasing demand for this capability.

That's among the new features of version 6 of Aspect's eWorkforce Management (eWFM) software.

Unlike previous versions, which limited you to choosing preferences for all agents, the current version of eWFM permits agents to state individual preferences. The one potential drawback, says Larry Skowronek, a senior product manager with Aspect, is that you have to rule out the schedules or shifts that agents elect not to work.

Another new option with eWFM: If you have a touchtone IVR system from Aspect, agents can use the system to adjust their schedules. The process, which is possible through an optional module called eSchedule Planner IVR (eSP IVR), is similar to what occurs when agents attempt to change their schedules on-line. Agents call the IVR system and key in IDs and passwords to hear their schedules. They can indicate timeframes for which they want to adjust their schedules. And they hear lists of exception codes (like time off, sick leave or jury duty) that they can apply to these changes.

After agents match up timeframes with exception codes, the agents and their supervisors automatically receive notification as soon as the system determines if the changes can go through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to check back about their schedules. Aspect has introduced a notification server that, by default, uses e-mail to inform agents, supervisors, plus anyone else who needs to know, about adjustments to schedules. The company was integrating eSP IVR with the notification server at press time. Other applications of notification, says Aspect's Showronek, are e-mail alerts when agents' adherence or service levels drop below a certain percentage. Aspect's goal, adds Showronek, is to tie eWFM with eFlow, the company's workflow engine, and Aspect's ACD. In theory, this would enable schedules and routing rules to automatically adapt to sudden peaks and valleys with staffing levels or call volumes. In most centers, though, supervisors and agents prefer to commit to schedules they've set up, and agents have agreed

to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call in to an IVR system.

Planner is Blue Pumpkin's latest tool to help you budget for staff before you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The software now lets them apply the same changes to multiple schedules simultaneously rather than having to update each schedule separately.

Keep in mind that by referring to new features, we mean those that are new to specific products. For example, some, but not all, workforce management software vendors include budgeting tools. Creating budgets, forecasts and schedules is complex, but it's more difficult once you start working with outsourcers. That's because you have to determine the most cost-effective distribution of calls to agents at your company and to the agents the outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with workforce management. Its standalone software, Blue Pumpkin Planner, helps you consider scenarios for budgeting staff, including the effect of outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to introduce modules to track agents' attendance and performance, plus their work off the phone.

IEX introduced schedule bidding last August within TotalView, based

on its clients' growing interest in this option. Also new with TotalView: You can generate adherence reports from the previous day. To ensure you know if agents are up-to-date about when they're working, the software now sends supervisors an immediate notification when agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools is the delivery of on-line courses to agents' PCs when agents have specific times blocked out for training, or when intraday reports indicate a lull in calls. In working with Knowagent's KnowDev Manager, which sends courses to agents, TotalView factors in scheduled training time when calculating adherence. (See last month's issue for further background on training software.)

OdySoft offers workforce management software from its headquarters in Canada, and resells the software in the US through Telecorp Products under the name CentrEE Calbrio. If you buy the software directly from OdySoft, it's called Calabrio.

The current version of the software enables agents to cite their preferences for shifts. This month, the software will let agents

view, trade or bid for schedules on-line. By this summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with schedules, your rules can reflect criteria like agents' seniority, and agents can select where they prefer to sit. Also new is the latest version of a separate vacation module, which allows agents to put in for floating holidays and comp time as well as vacation days.

Vantage Point, the name of the latest version of Pipkins' Maxima Advantage, now enables schedulers to record macros containing their most common sequences of keystrokes and mouse clicks so they don't have to repeat these actions each time they launch the software. The first time they use Vantage Point, schedulers create profiles of themselves, which they can subsequently update; these profiles include their macros.

Like the vendors that specialize in serving large centers, vendors that gear their scheduling software toward small and mid-size centers - GMT, ISC, PRM, Portage and RightForce - give you plenty of flexibility in how you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which individual agents or what percentage of agents should receive their first preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which agents or percentage of agents should receive their top choices of shifts, based on seniority or other factors.

Besides preferences, scheduling tools for small centers also let you factor in

agents' proficiency to handle certain types of calls. A new feature of RightForce's software is that it lets you indicate a starting proficiency level for new hires and allows you to set a timeframe for how long it usually takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time.

With vacation time, agents have the choice of joining a waiting list if the dates they asked for are not available.

You install most workforce management software at your center. ISC is unusual in that half of its customers prefer the company to host its software. Bob Junk, vice president of global sales and marketing for ISC (New York, NY), says that the company's clients sometimes opt for hosting for as long as three or four months before they decide if they want to

bring the software in-house. RightForce also hosts its software for its clients.

Some vendors, like Aspect and Genesys, offer call routing software that meshes with their forecasting and scheduling tools. Other vendors complement their workforce management products with call reporting software.

With the help of Mission Control, an optional module, version 8 of GMT's scheduling software lets you view forecasts in comparison to historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e-mail messages to let them know if it's possible to fulfill the requests, subject to your center's rules. If a request is not feasible, the module presents agents with alternate schedules. Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce management tool, incorporates a repository of ACD statistics, plus two other products from Symon: Symon 2000, which provides real-time ACD reports, and Historian, which lets you consolidate data from various sources, including phone switches from different manufacturers.

Symon, along with Eqtima (Battle Creek, MI) and Hansen, is among the new developers of forecasting and scheduling tools. We'll keep you posted on the evolution of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to share this information by press time.

Aspect

Aspect's software begins at \$20,000 per server and \$300 per supervisor. The starting cost for each agent is \$100 if you use the software to do forecasts, build schedules and compare data like the number of calls you expected to receive, and for which you planned in your schedules, against actual call volumes.

Blue Pumpkin

For a 500-seat center, PrimeTime Director and PrimeTime Planner together start at about \$225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if your center has one site and \$1,475 per seat if you have multiple sites.

Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at \$20 per month for each agent you schedule, plus an initial set-up fee of \$5,000. ISC declined to cite pricing for on-site software licenses, which the company was determining at press time.

OdySoft

Pricing for Calabrio, if you purchase it directly from OdySoft, ranges from \$40,000 for a 100-seat center to \$51,750 for a 250-seat center. Each of these costs includes \$6,000 to measure real-time adherence, \$4,500 to capture data from one ACD, and \$4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and costs \$1,000 per day. Annual maintenance is between 15% and 18% of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs \$15,000, plus travel expenses for on-site installation. For intraday reports, the software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at \$4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention, AgentTime does not directly import statistics from ACDs.

Symon

Pricing for Contact Center Community, including the Symon 2000 and Historian reporting modules, starts at \$59,000 for a 100-seat center, plus annual maintenance that begins at 15%.

To sum up, the more features, the higher the price. This rule applies to most products, especially workforce management software. That's why your best bet is to buy only what you need, especially if a product's basic forecasting and scheduling features are enough for your center.

You can potentially reduce certain costs, like those related to integration, if you already have routing software or other complementary products from the same company that provides your workforce management tools.

THIS IS THE FULL-TEXT.

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...time off, sick leave or jury duty) that they can apply to these changes.

After agents match up timeframes with exception codes, the agents and their supervisors automatically receive notification as soon as the system determines if the changes can go through. If so, eWFM updates agents' schedules.

One caveat with this procedure is that eWFM doesn't tell agents when to check back about their schedules. Aspect has introduced a notification server that, by default, uses e-mail to inform agents, supervisors, plus anyone else who needs to know, about adjustments to schedules. The company was integrating...

...press time. Other applications of notification, says Aspect's Showronek, are e-mail alerts when agents' adherence or service levels drop below a certain percentage. Aspect's goal, adds Showronek, is...

...s workflow engine, and Aspect's ACD. In theory, this would enable schedules and routing rules to automatically adapt to sudden peaks and valleys with staffing levels or call volumes. In most centers, though, supervisors and agents prefer to commit to schedules they've set up, and agents have agreed to, in advance.

Aspect's eSchedule Planner, shown here, lets agents automate

requests to change their schedules, like swaps of shifts or vacation time. Agents can submit requests on-line, as shown. They can also call in to an IVR...

...budget for staff before you develop forecasts and schedules.

eWFM also includes additional enhancements for supervisors. The software now lets them apply the same changes to multiple schedules simultaneously rather than...

...we mean those that are new to specific products. For example, some, but not all, workforce management software vendors include budgeting tools. Creating budgets, forecasts and schedules is complex, but it...

...That's because you have to determine the most cost-effective distribution of calls to agents at your company and to the agents the outsourcer employs.

In late February, Blue Pumpkin introduced a tool to combine budgeting with workforce management. Its standalone software, Blue Pumpkin Planner, helps you consider scenarios for budgeting staff, including...

...outsourcing or hiring temps. Later this spring, Blue Pumpkin plans to introduce modules to track agents' attendance and performance, plus their work off the phone.

IEX introduced schedule bidding last August within TotalView, based on its clients' growing interest in this...

...TotalView: You can generate adherence reports from the previous day. To ensure you know if

agents are up-to-date about when they're working, the software now sends supervisors an immediate notification when agents view the latest changes to their schedules.

A feature of TotalView you're likely to find among various scheduling tools is the delivery of on-line courses to agents' PCs when agents have specific times blocked out for training, or when intraday reports indicate a lull in calls. In working with Knowagent's KnowDev Manager, which sends courses to agents, TotalView factors in scheduled training time when calculating adherence. (See last month's issue for further background on training software.)

OdySoft offers workforce management software from its headquarters in Canada, and resells the software in the US through...

...software directly from OdySoft, it's called Calabrio.

The current version of the software enables agents to cite their

preferences for shifts. This month, the software will let agents view, trade or bid for schedules on-line. By this summer, OdySoft's software will automatically notify agents about the status of their requests to trade shifts.

A new optional module of the software lets you determine agents' seating arrangements. As with schedules, your rules can reflect criteria like agents' seniority, and agents can select where they prefer to sit. Also new is the latest version of a separate vacation module, which allows agents to put in for floating holidays and comp time as well as vacation days.

Vantage...

...GMT, ISC, PRM, Portage and RightForce - give you plenty of flexibility in how you define agents' preferences.

Portage's (North Bend, WA) AgentTime, for instance, lets you indicate which individual agents or what percentage of agents should receive their first preferences, based on seniority or other ranking.

AgentTime, Portage's first-ever scheduling tool, lets you determine which agents or percentage of agents should receive their top choices of shifts, based on seniority or other factors.

Besides preferences, scheduling tools for small centers also let you factor in agents' proficiency to handle certain types of calls. A new feature of RightForce's ...you to set a timeframe for how long it usually takes, or should take, for agents to achieve greater skill.

Like some products for larger centers, RightForce automatically responds to agents' requests to swap shifts or take vacation time. With vacation time, agents have the choice of joining a waiting list if the dates they asked for are not available.

You install most workforce management software at your center. ISC is unusual in that half of its customers prefer...

...call routing software that meshes with their forecasting and scheduling tools. Other vendors complement their workforce management products with call reporting software.

With the help of Mission Control, an optional module...

...historical and real-time reports from your ACD.

Another optional module, Employee Time Center, presents agents with lists of shifts that are available to them. Agents can request to trade shifts or put in for time off. This module automatically sends agents and their supervisors e-mail messages to let them know if it's possible to fulfill the requests, subject

to your center's rules. If a request is not feasible, the module presents agents with alternate schedules.

Contact Center Community, Symon's (Sugar Land, TX) first-ever workforce management tool, incorporates a repository of ACD statistics, plus two other products from Symon: Symon...

...forecasting and scheduling tools. We'll keep you posted on the evolution of these companies' workforce management software.

PRICING

Below is pricing on specific products from companies that were able to...

...press time.

Aspect

Aspect's software begins at \$20,000 per server and \$300 per supervisor. The starting cost for each agent is \$100 if you use the software to do forecasts, build schedules and compare data...

...Director and PrimeTime Planner together start at about \$225,000 if you wish to enable agents to view schedules, indicate their preferences for shifts and request trades of shifts.

Genesys

Genesys' workforce management software begins at \$1,150 per seat if your center has one site and...

...have multiple sites. Based on this pricing, each seat can refer to more than one agent.

Work Them Into Your Schedule

At this cost, the software enables you to confirm agents' adherence to schedules, and it allows agents to state preferences for schedules, retrieve schedules and apply to swap schedules.

ISC

The cost of the hosted implementation of Irene starts at \$20 per month for each agent you schedule, plus an initial set-up fee of \$5,000. ISC declined to cite...

...time adherence, \$4,500 to capture data from one ACD, and \$4,000 to enable agents to view and request changes to schedules on-line.

Installation usually takes two days and...

...of the price of the software.

PRM

The forecasting and scheduling component of PRM's Agent Power software costs \$15,000, plus travel expenses for on-site installation. For intraday reports...

...software can retrieve information from phone switches like the number of calls a group of agents has answered up to a particular moment in the day. (In this context, we refer to groups you've defined in your ACD's routing rules.)

Portage

AgentTime starts at \$4,900 and includes CC Designer, a module that bases forecasts on Erlang-C calculations, and SimACD, which bases forecasts on simulations. Unlike the other tools we mention, AgentTime does not directly import statistics from ACDs.

Symon

Pricing for Contact Center Community, including the...

...that begins at 15%.

To sum up, the more features, the higher the price. This rule applies to most products, especially workforce management software. That's why your best bet is to buy only what you need...

...already have routing software or other complementary products from the same company that provides your workforce management tools.

Descriptors:

Call centers; ...

...Workforce planning

Classification Codes:

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